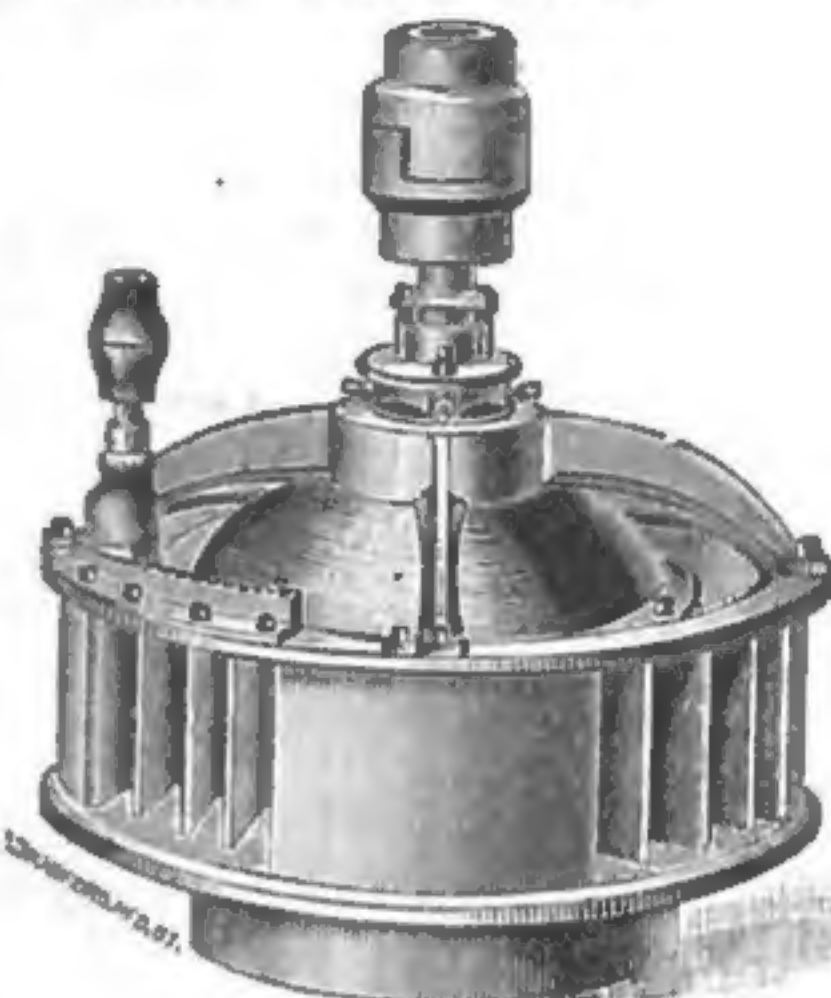


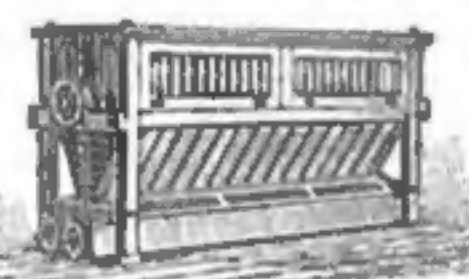
THE MILLING WORLD

AND

CHRONICLE OF THE GRAIN AND FLOUR TRADE



THE SUCCESS



BOLTER AND DRESSER

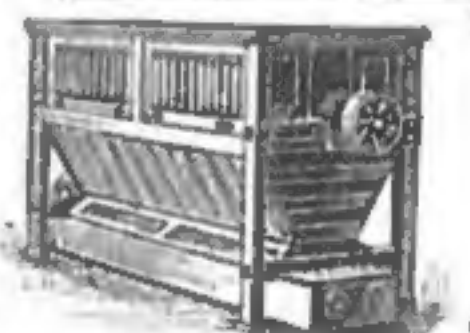
WE BUILD

**FLOUR MILLS,
CORN MILLS
- - - AND - - -
HOMINY MILLS**

WE FURNISH


**EITHER THE
SHORT,
MEDIUM
- - - OR - - -
LONG SYSTEM**

THE ALLFREE



CENTRIFUGAL REEL

THE J.B. ALLFREE

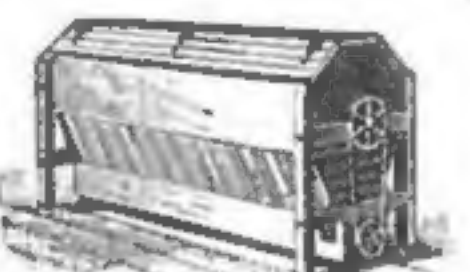


TWO-REEL SCALPER

KEYSTONE

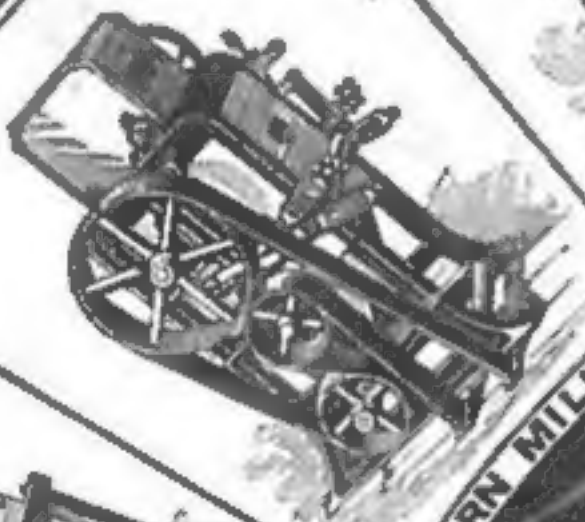


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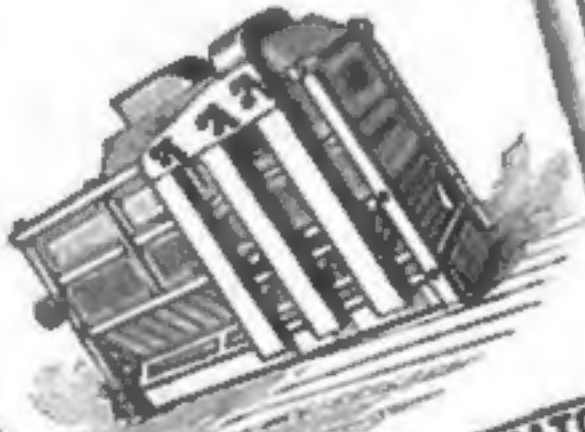


CORN MEAL BOLT

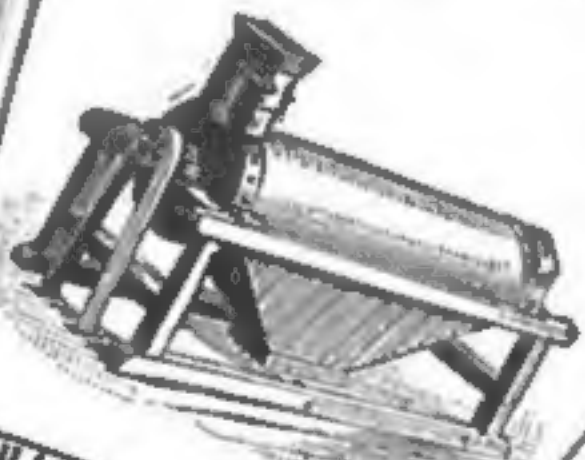
THE KEYSTONE FOUR-HIGH



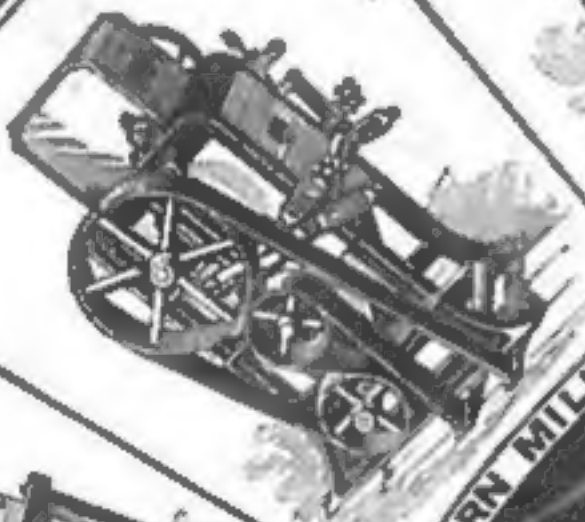
THE ALLFREE CORN MEAL BOLT




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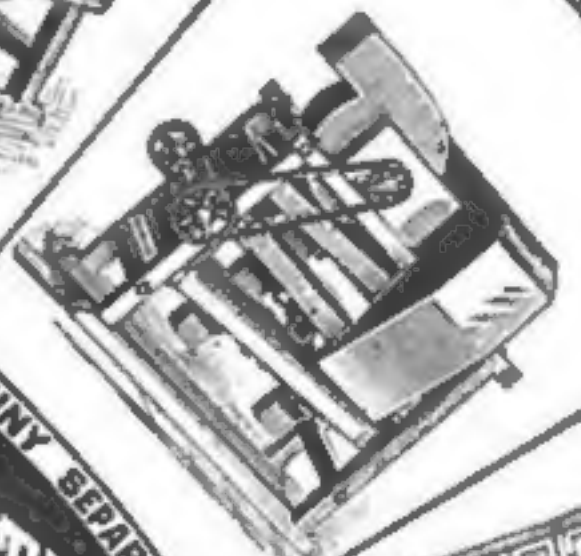


FOUR-ROLLER WHEAT MILL

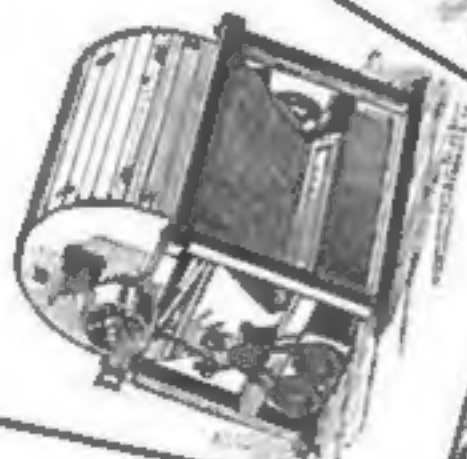


ROLLS REGROUND AND REGORRUGATED.

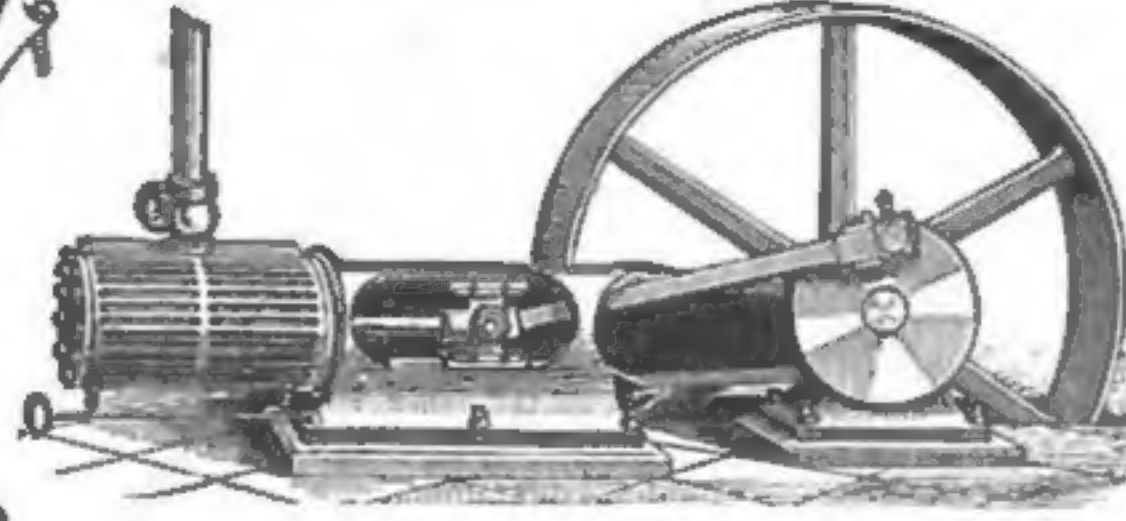
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THE ALLFREE AUTOMATIC ENGINE



"THE BEST MILL ENGINE IN THE WORLD."

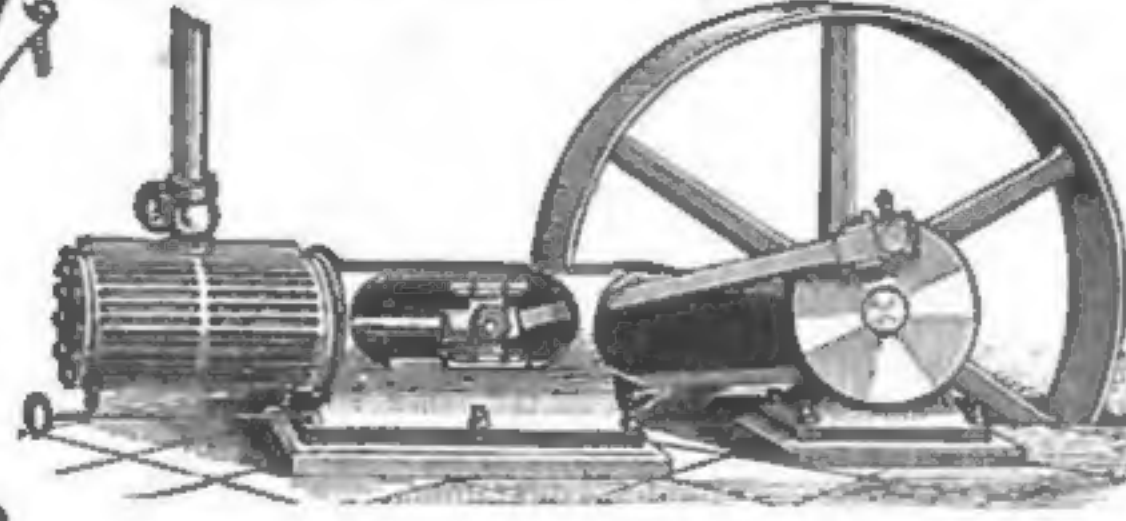
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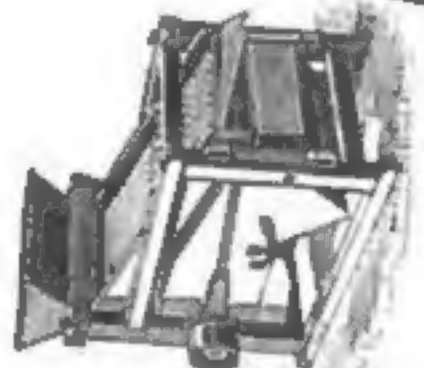


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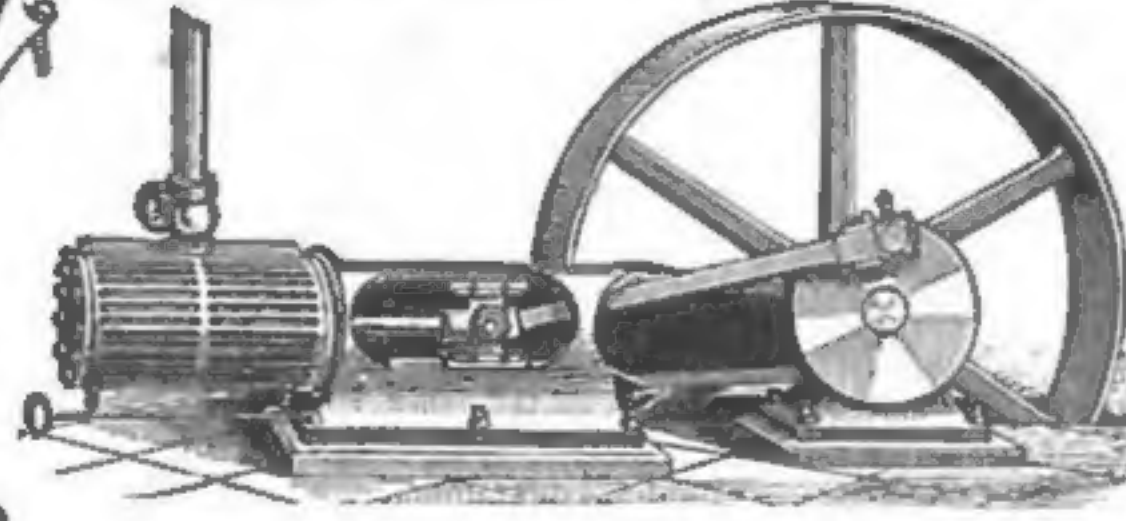
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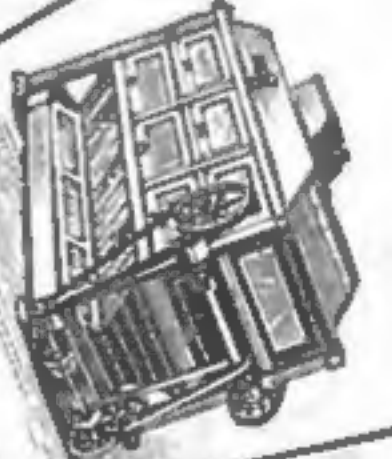


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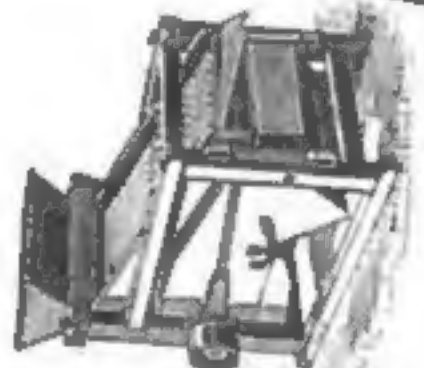


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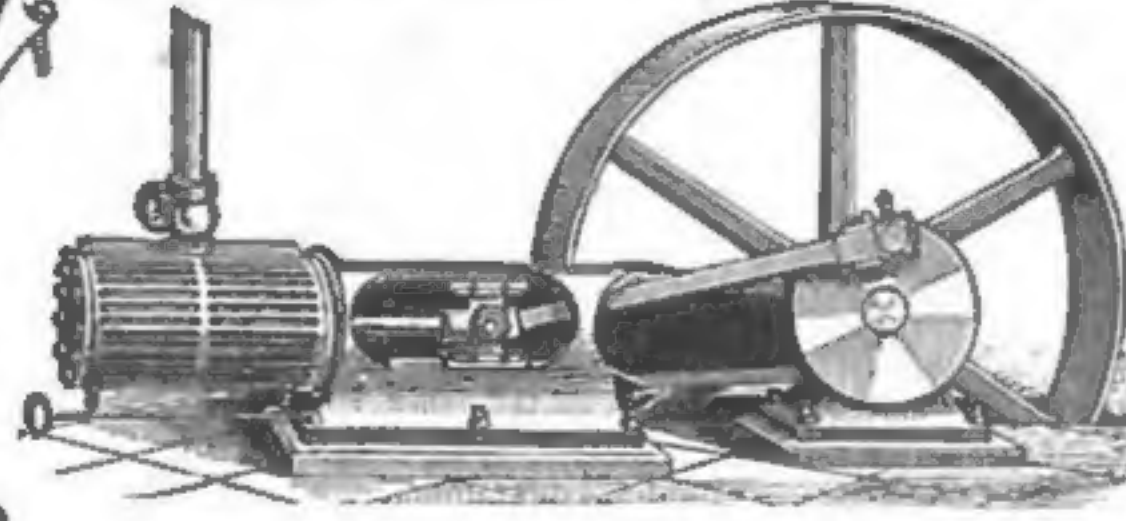
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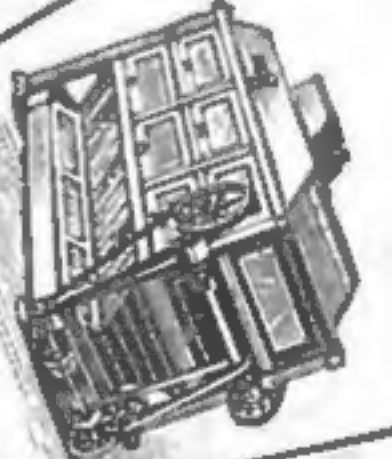


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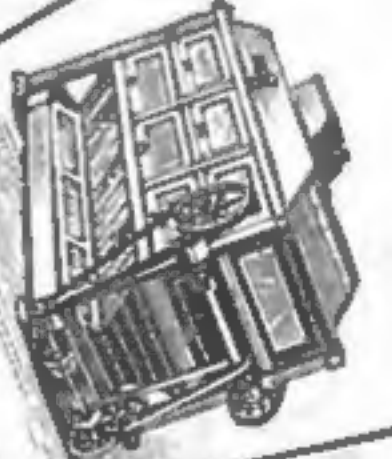


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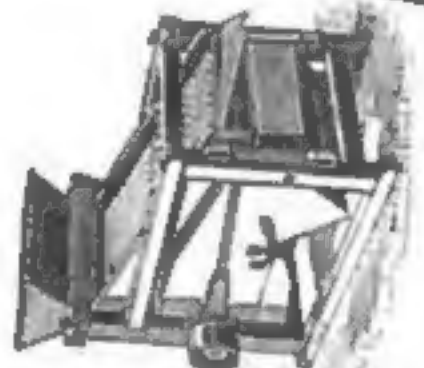


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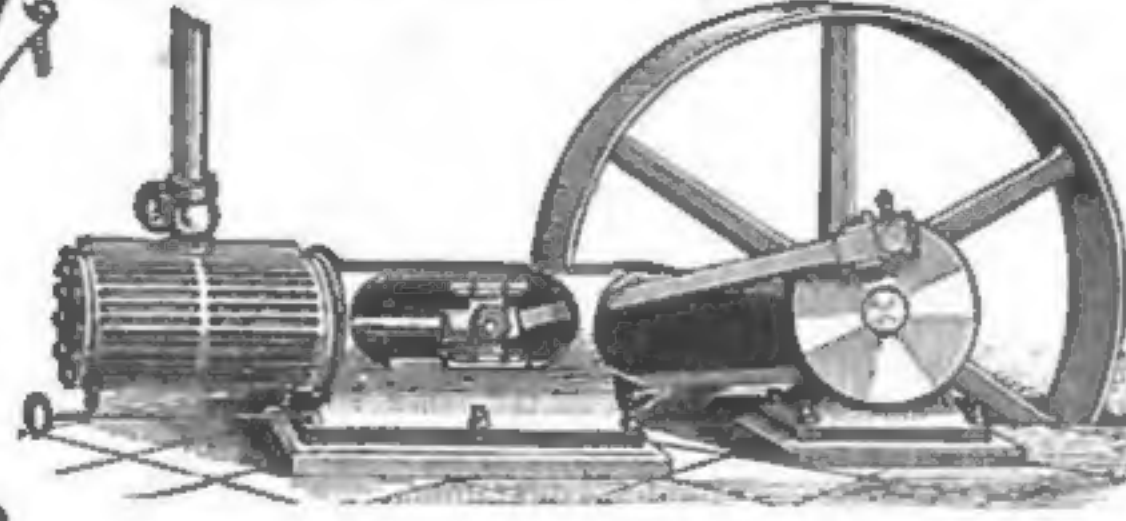
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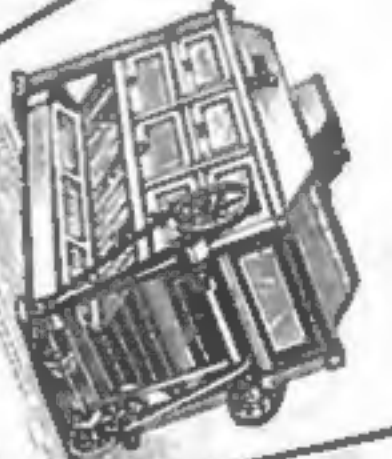


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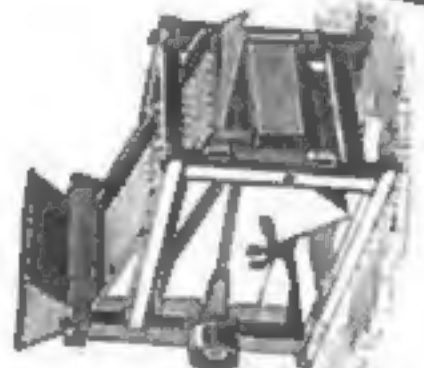


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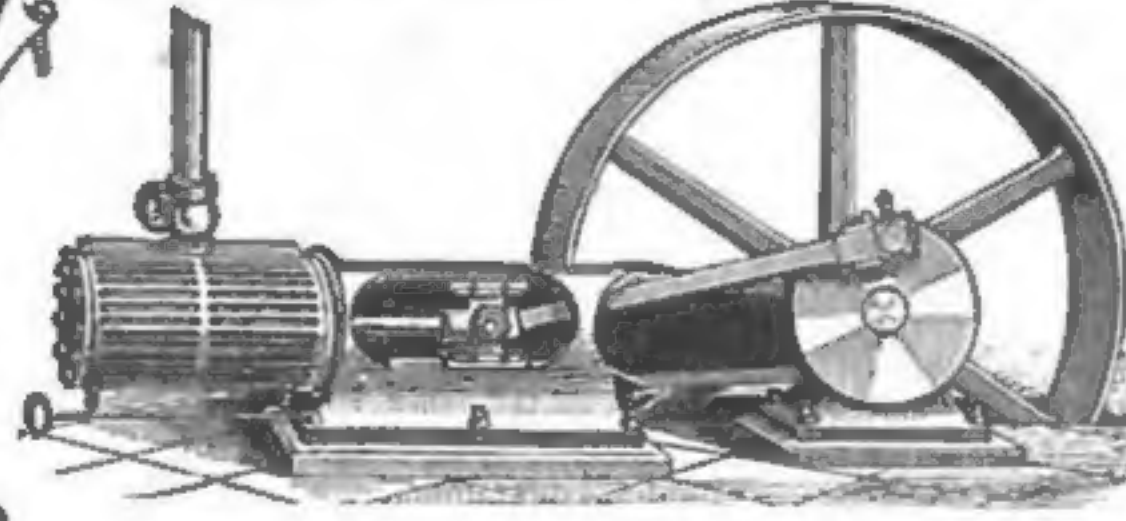
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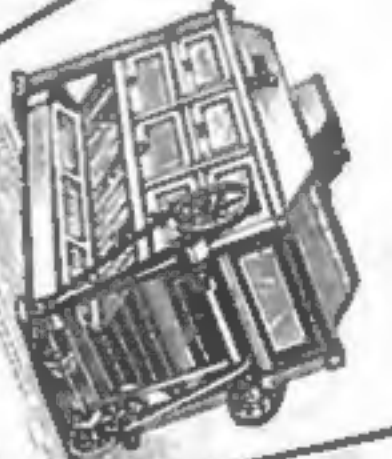


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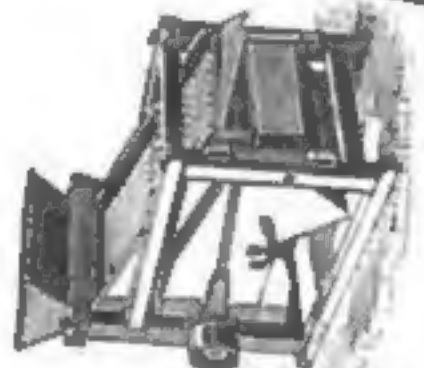


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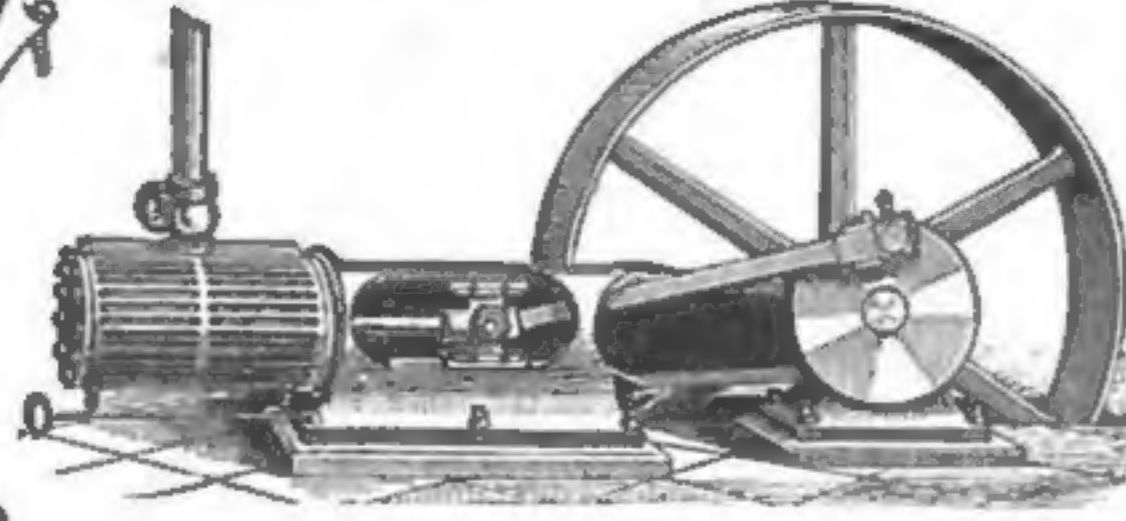
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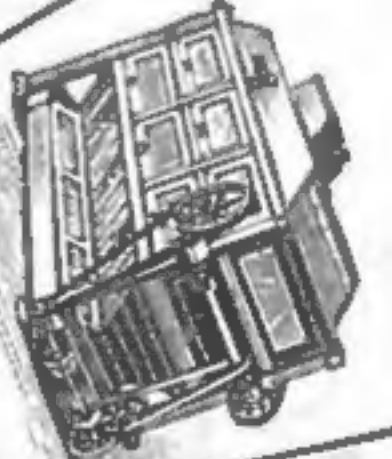


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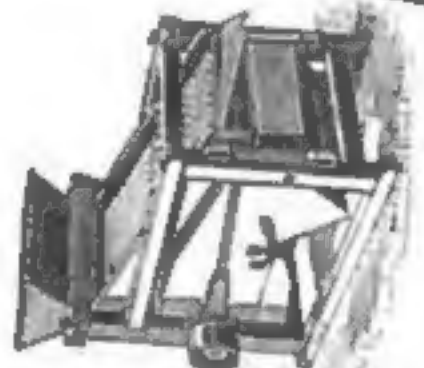


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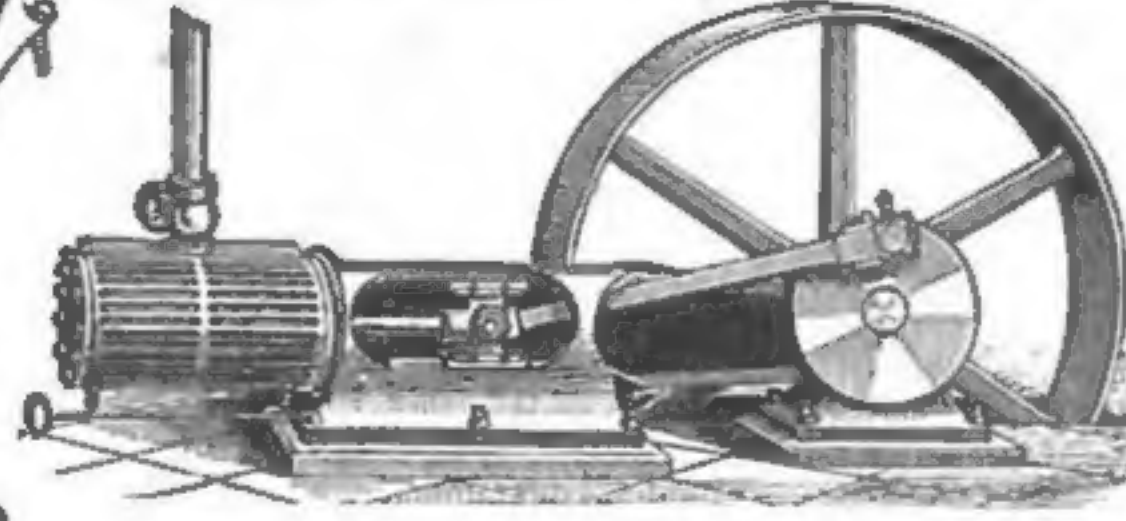
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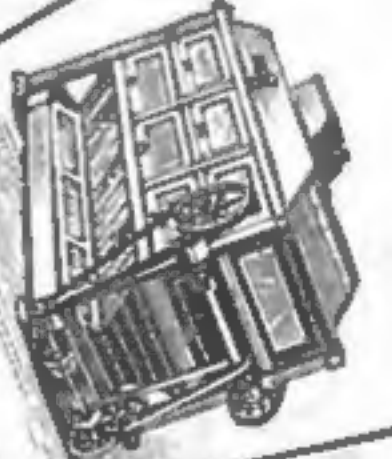


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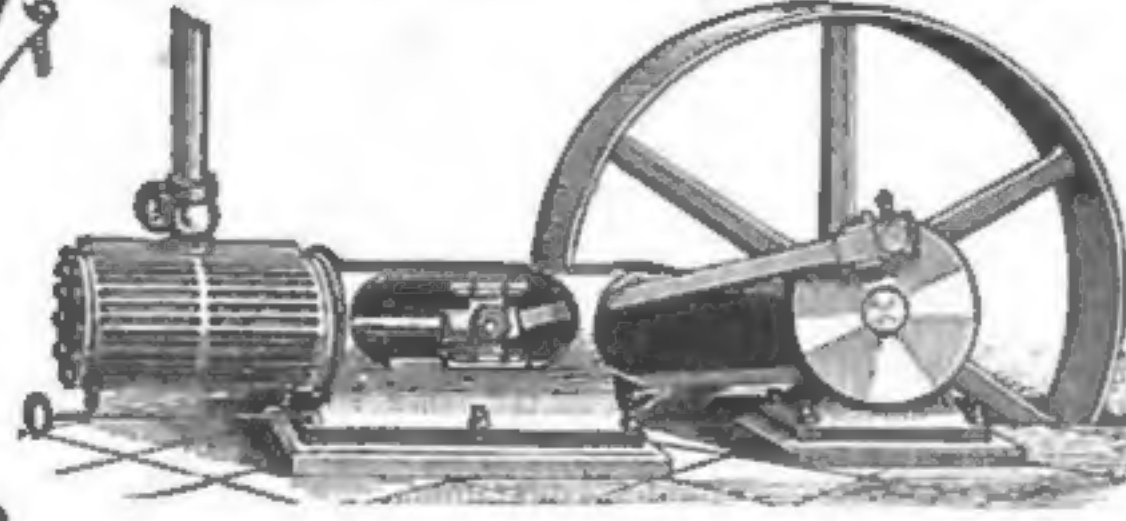
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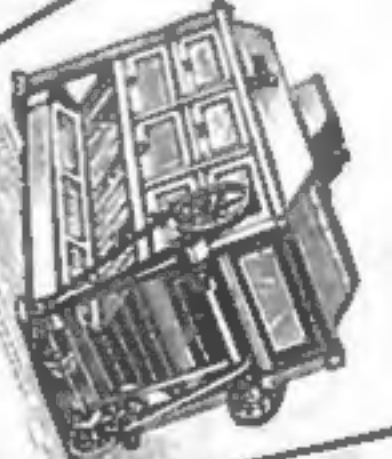


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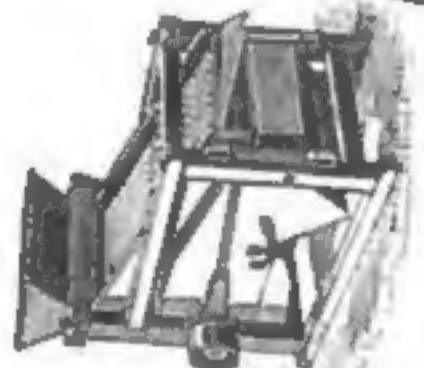


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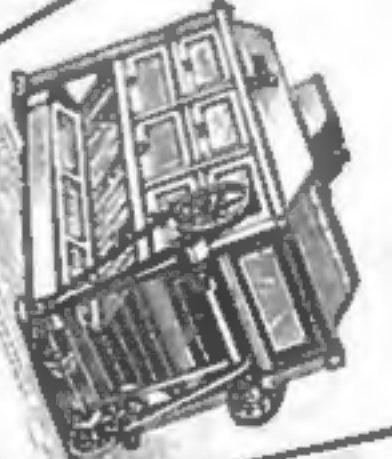


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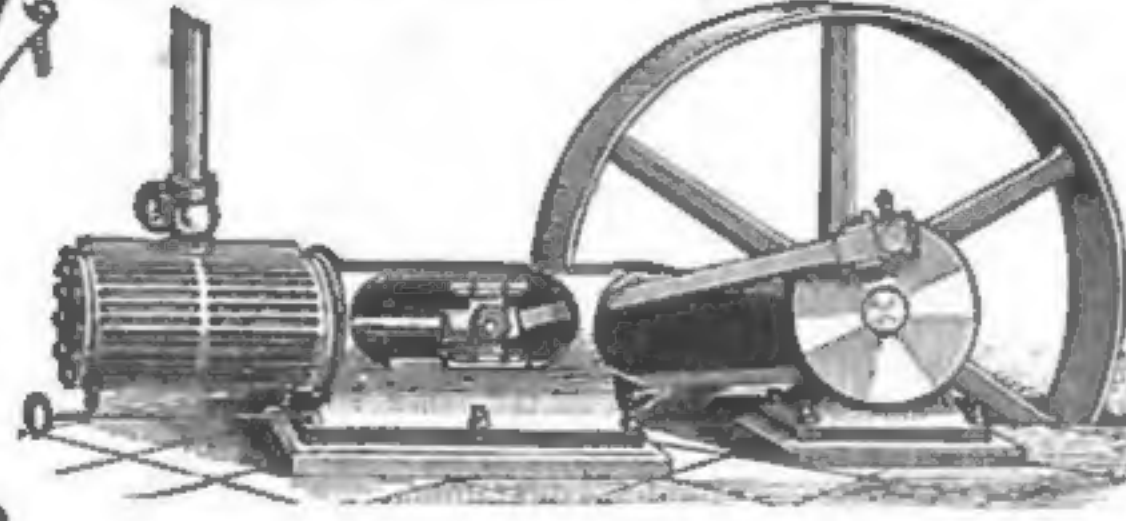
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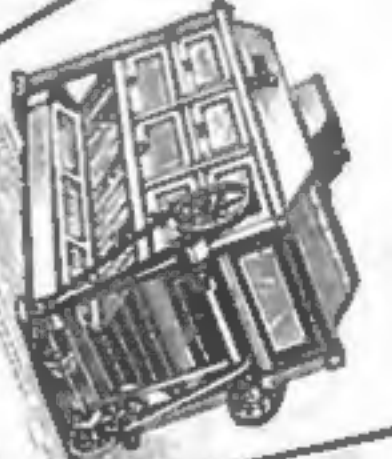


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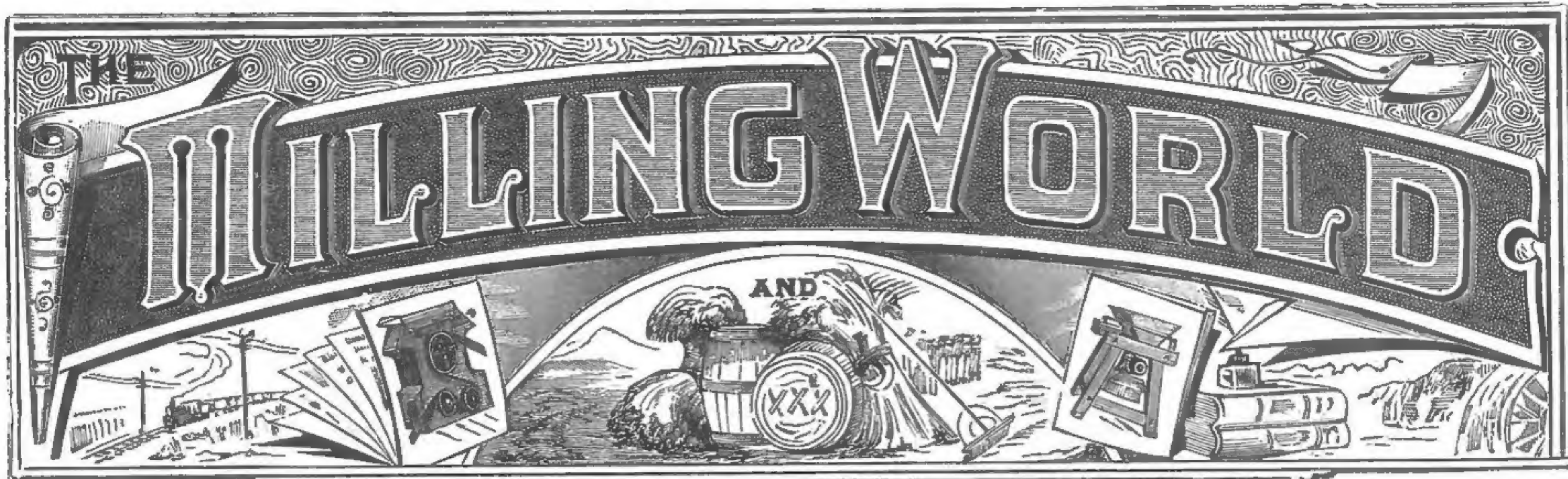
CASE.

CASE MFG. CO., COLUMBUS, O.
GENTLEMEN: If we were to build a hundred mills we
would not permit any other than the "CASE" roll to
enter them. They are the best roll on earth.
Yours truly,

W. C. MANSFIELD & CO.

W. C. MANSFIELD & CO.,
MERCHANT MILLERS,
CLEVELAND, TENN., AUG. 29, 1889.

CASE.



CHRONICLE OF THE GRAIN AND FLOUR TRADE

PUBLISHED EVERY MONDAY MORNING.

VOL. XXI. No. 17.

BUFFALO, N. Y., DECEMBER 23, 1889.

\$1.50 PER YEAR.

WHAT has become of the Millers' National Association of the United States of America? Has it suicided, homicided or coincided? Is it alive, or dead? Is it kicking, or kicked? Is it defending, or offending, the millers of the country? Where, O where, is the Millers' National Association of the United States of America?

DULUTH is now attracting the British investor. That settles Duluth's chances of outgrowing Chicago. If the Britons get hold of Duluth, that city will grow about as rapidly as do some of the Canadian towns of to-day, Windsor, Owen Sound, Port Colborne and Fort Erie, for instance. Duluth may be attracted by British gold, but Duluth may as well understand that Britons do not "boom" things. If Duluth cares to outgrow Chicago and New York, let her beware the plodding, non-boom Briton who is striving to acquire all her potentialities and the management of her future.

OUR esteemed Kansas City cotemporary, "The Modern Miller," referring to the grain and export paper published in Minneapolis, says of it that it "seems to be actuated with a desire to say spiteful things and make trouble for somebody if it can. To all appearances it is hiring men for the sole and only object of kicking up a stench." Did our Kansas City cotemporary ever know the time when the Minneapolis sheet was not engaged in "kicking up a stench"? Has it ever done any thing else than "kick up a stench" under its present owners and management? Every time it shakes itself up there's bound to be a "stench." That's the nature of the mephitic beast. It walks safe in its armor of circumambient "stench." Our Kansas City cotemporary should not be surprised at the Minneapolis attack on Kansas City wheat grading. Charge it to the "stench."

NOT long ago our Canadian friends were laughing at the railroad situation in the United States. They were greatly amused at our Fool Interstate Commerce Law, which forbids our roads to compete and cut prices, while the Canadian Pacific is absolutely unrestricted and can even enter American territory and do as it pleases about making rates. They indignantly denied our right to compel their subsidized road to obey our laws. They were, in short, very sure that they had the best of the bargain, and they pointed to the growing business of their road at the expense of the American lines. They were sure that the slow-witted Yankees had been outgeneraled by the alert Canucks. Now comes a fly in their soup. It is revealed by the official records of the Canadian Pacific that the rates given by that line, to secure American traffic, really discriminate seriously against the Dominion of Canada in the most important way conceivable. The subsidized Canuck line carries Yankee produce from the Northwest from 25 to 50 per cent. cheaper than it carries Canuck produce. The result is a bad one in two ways: 1. The Manitoba wheat growers, finding that Dakota and Minnesota wheat-growers can send their wheat to market at vastly lower rates over the Canuck line than the Manitobans can send theirs over the same line, grow discontented and find it better to leave Manitoba and move

into Dakota and Minnesota, to be able to enjoy equal shipping privileges. This drives farmers out of Manitoba. 2. This singular discrimination has become widely known, and it keeps out those who would, under different conditions, move into Manitoba. Contemplation of these two highly important facts is leading the more intelligent Canadians to view their Canadian Pacific Railway as something quite different from an unmixed blessing. Meanwhile, every bushel of Dakota or Minnesota wheat that reaches the seaboard, over the Canadian route, 20 to 40 cents cheaper than the laws will permit it to go by the American routes, costs the Canadian taxpayer the difference directly in money. On general principles, perhaps it is well to let the Canadians tax themselves to carry cheaply for us, especially as the taxation drives their best farmers over the border into the United States.

DURING the past two months we have seen and read in European journals, milling, financial and others, a good deal about the brilliant prospects of the wheat crop in the Argentine Republic and the Australian Colonies. All the reports have been in one direction, that of large crops of fine quality, and all tend to bear the prices of American wheat and flour in Europe. All these reports come through the agencies of the European countries most directly interested in bearing American prices, and there is a fair doubt about their reliableness. A recent letter from a traveler in the Argentine Republic mentions late frosts of considerable severity, which seem to have escaped the notice of the European bear reporters, and which materially damaged the growing wheat. The same letter speaks of irregular rain distribution, of increased insect pests, of decreased acreage, of discouraged wheat-growers, and of an outlook promising very little, if any, better than that of last year at this date. Perhaps it would be well for American grain and flour dealers to sift the European reports of Argentinian and Australian crop conditions. It would be wiser and better for them to establish in all competing grain-growing countries crop-reporting and news-gathering agencies of their own. They have made prices and traded on European reports unquestioningly for years, and they have lost incalculably by that course. Of course they have always learned the truth at the end of the campaign, but at that late date the truth can not be coined into money. There seems to be good reason for doubting the reported promise of a "magnificent crop of fine wheat" in both the Argentine Republic and the Australian Colonies this season. Our American grain-handlers may argue that it would be a costly undertaking to attempt to gather reports for themselves in far-away lands, but it is a safe assertion that their dependence upon the reports of European importers costs them more in one year, in prices "beared" by those importers in their reports, than it would cost to gather reports for themselves in twenty years. For years the preliminary reports on the crops of all competing countries have been found to be the grossest exaggerations, and generally the truth is suppressed until the American crop or surplus has passed out of American hands. Messrs. Grain Handlers of the United States of America, are you taking proper business precautions in this important matter?

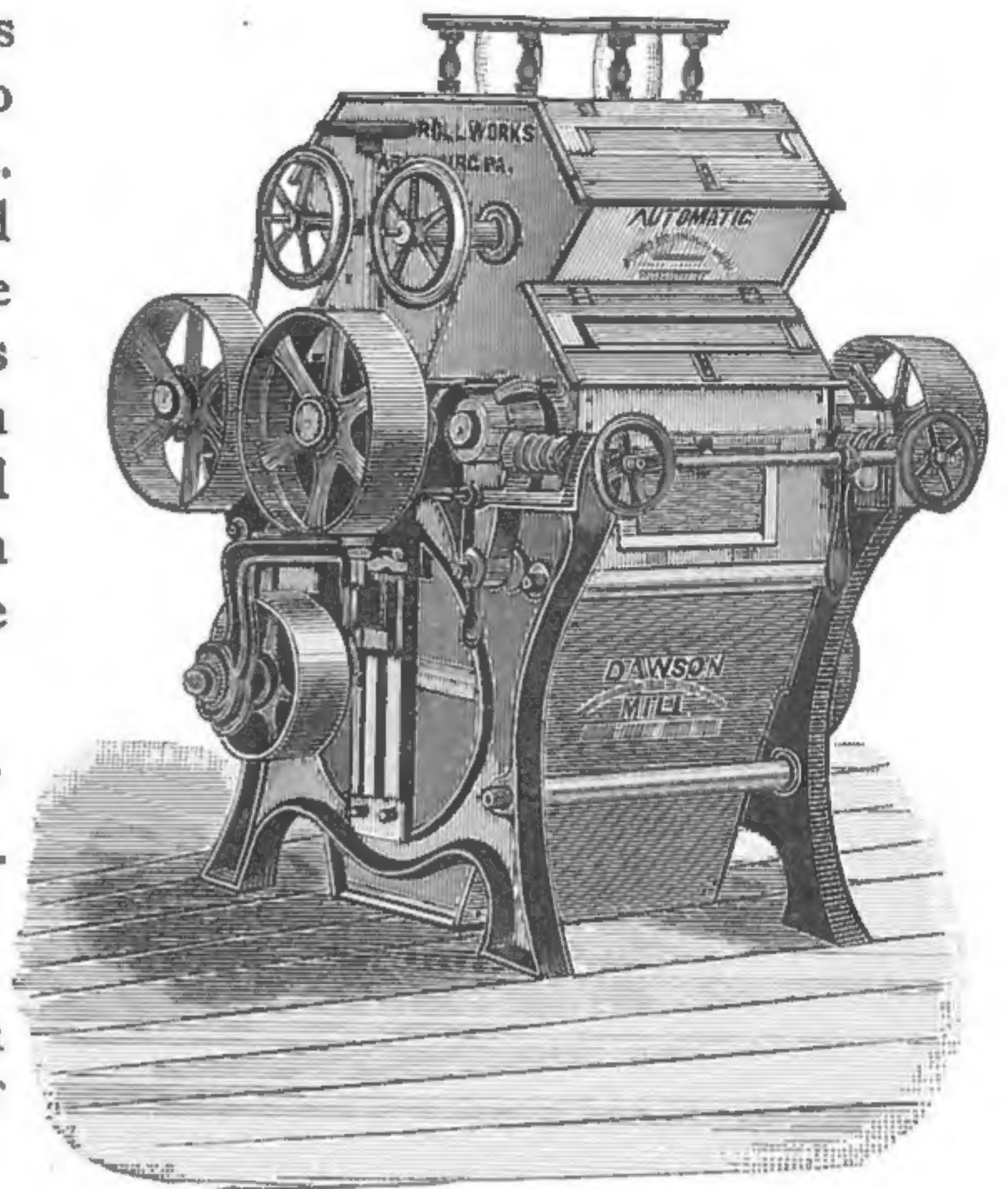
Dawson's Roller Mill

Is acknowledged to be the very best in the market. It has our Patent Automatic Centrifugal feeder, never failing to feed the stock the full length of rolls in an even sheet. It is the Latest and Best feed out, uses less power and is simple in construction. It can be placed on any style of machine with little expense. We use for roll bearings phosphor-bronze metal which will admit rolls being run at any speed without heating and with little friction, and uses little oil. We use the Dawson Corrugation, which is admitted the best in long or short system mills as the action is granulating rather than CUTTING.

We have a large plant to Re-grind and Re-Corrugate Rolls.

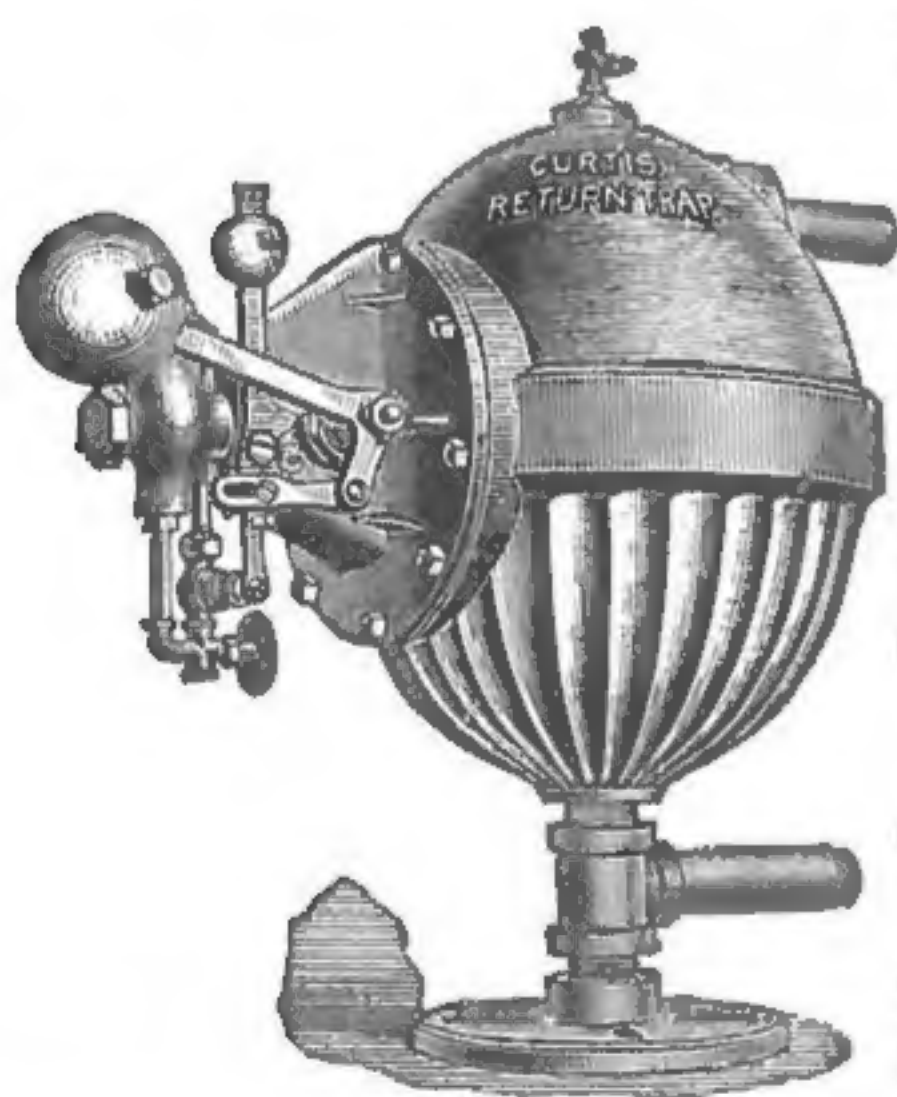
Owing to our late increased facilities and central location we are enabled to ship goods promptly on the shortest notice.

PARTIES CONTEMPLATING REMODELING THEIR MILLS OR BUYING ANY ROLLER MACHINES ARE REQUESTED TO PUT THEMSELVES IN CORRESPONDENCE WITH US.



FOR PRICE LISTS AND CIRCULARS, ADDRESS,

Dawson Roll Works, Harrisburg, Pa.



THE CURTIS PATENT RETURN STEAM TRAP.

It is noiseless, positive, rapid, will return all condensation back into the boiler, and works equally well in connection with reduced pressure or exhaust steam, also when the return is below the water line of the boiler.

THE CURTIS REGULATOR COMPANY,
No. 74 BEVERLY ST., BOSTON, MASS.

GENERAL AGENCIES.

New York, 109 Liberty st. Minneapolis, 210 S. Third st.
Philadelphia, 2035 N. Front st. Chicago, 218 Lake st.

* **THE INK** *
WITH WHICH THIS PAPER IS PRINTED
IS MADE BY THE
QUEEN CITY PRINTING INK CO.
CINCINNATI, O.

WHEN WRITING TO ADVERTISERS PLEASE MENTION "THE MILLING WORLD."

The Canton Cabinet Filing Case Company, Canton, Ohio.

MANUFACTURERS OF

The New Buckeye Document Case & Letter File; Also All Kinds Office Furniture



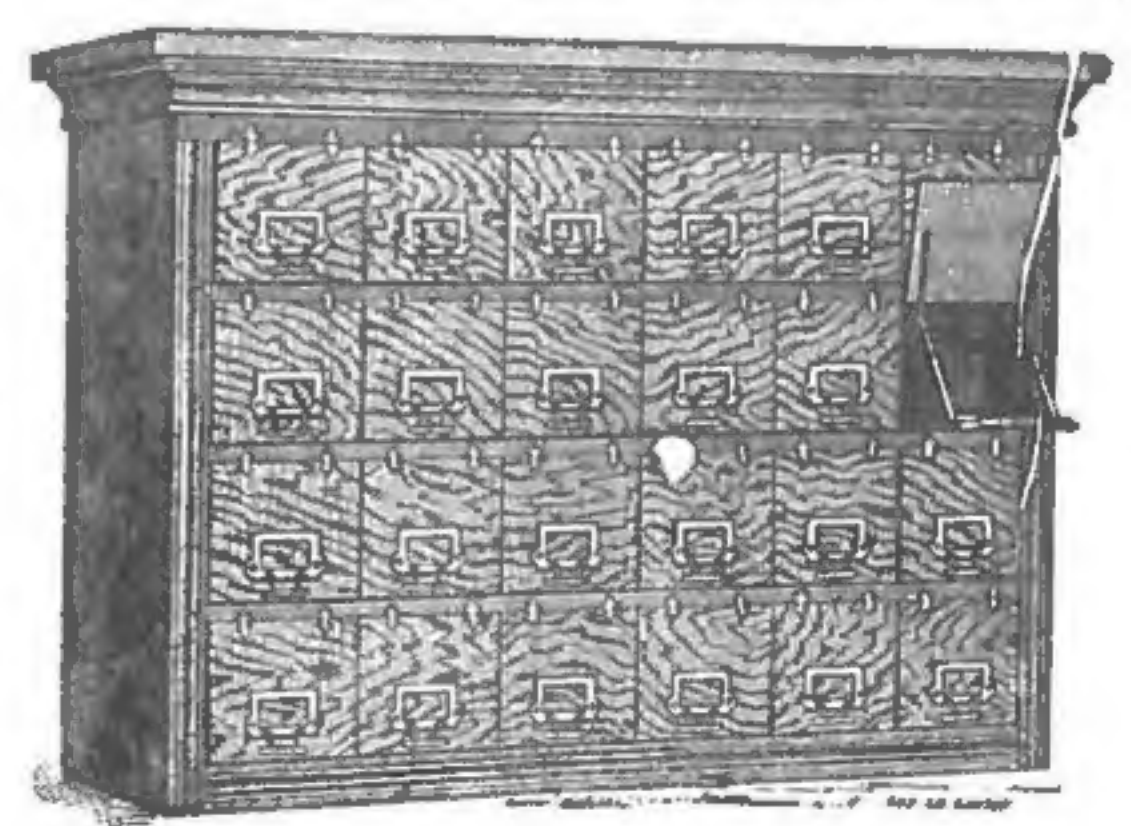
NO. 8.

NO. 8 Represents one side of one of our Revolving Cabinet Letter Files and Document Cases Combined. It contains 30 Document Drawers and 8 Letter File Drawers. In filing letters we use first VOWEL of name on front of drawer, and LETTER FOLLOWING first VOWEL on Index Sheet within drawer. We also make more exhaustive systems which contain from 6 to 100 or more Filing Drawers.

NO. 1 Represents one of our small Document Cabinets, for use on desks or brackets. Action of drawer can be seen in the cut. When front is raised inner drawer comes forward, exposing contents of drawer for inspection.

Our Cabinet Files are Conceded to be the Most Convenient of Any, in the Market. They are Compact, Simple, Complete, Durable and Ornamental.

SEND FOR PRICE LIST AND CATALOGUE.



NO. 1.



PUBLISHED EVERY MONDAY. OFFICES: { Corner Pearl and Seneca Streets,
Over Bank of Attica.
McFAUL & NOLAN, - - - PROPRIETORS.
THOMAS MC FAUL. JAMES NOLAN.

SUBSCRIPTION.

In the United States and Canada, postage prepaid, \$1.50 Per Year, in advance; remit by Postal Order, Registered Letter, or New York Exchange. Currency in unregistered letter at sender's risk.

To all Foreign Countries embraced in the General Postal Union, \$2.25 Per Year, in advance.

Subscribers can have the mailing address of their paper changed as often as they desire. Send both old and new addresses. Those who fail to receive their papers promptly will please notify at once.

ADVERTISING.

Rates for ordinary advertising made known on application.

Advertisements of Mills for Sale or to Rent; Partners, Help or Situation Wanted, or of a similar character One cent per word each insertion, or where four consecutive insertions are ordered at once, the charge will be Three cents per word. No advertisement taken for less than 25 cents. Cash must accompany all orders for advertisements of this class.

Orders for new advertisements should reach this office on Friday morning to insure immediate insertion. Changes for current advertisements should be sent so as to reach this office on Saturday morning.

EDITOR'S ANNOUNCEMENTS.

Correspondence is invited from millers and millwrights on any subject pertaining to any branch of milling or the grain and flour trade.

Correspondents must give their full name and address, not necessarily for publication, but as a guarantee of good faith.

This paper has no connection with a millfurnishing house and aims to represent the trade without prejudice, fear or favor.

Address all communications

THE MILLING WORLD,
BUFFALO, N. Y.

Entered at the Post Office, at Buffalo, N. Y., as mail matter of second-class.

SITUATIONS WANTED.

Advertisements under this head, 25 cents each insertion for 25 words, and 1 cent for each additional word. Cash with order. Four consecutive insertions will be given for the price of three.

WANTED.

Situation wanted by a Miller of 9 years' experience, 24 years of age, of steady habits and willing to work. Address, H. care of The Milling World, Buffalo, N. Y.

WANTED.

Western New York, Ohio and Pennsylvania mills in want of a temperate miller, with 20 years experience, should write to the undersigned, who is now running a first class mill, but would like to make a change this fall. Address, W., care of THE MILLING WORLD.

SPECIAL ADVERTISEMENTS.

Advertisements of Mills for Sale or Rent, Partners Wanted, Machines for Sale or Exchange, etc., etc., cost 1 cent per word, for one insertion, or 3 cents per word for four insertions. No order taken for less than 25 cents for one insertion, or 50 cents for four insertions. Cash must accompany the order. When replies are ordered sent care of this office 10 cents must be added to pay postage.

FOR SALE.

Merchant and grist mill. The best water-power in Ohio. Situated five miles from Mentor, Ohio. For particulars enquire of C. S. JOHNSON, West Mentor, O. 1216

FOR SALE.

Mill property in Central New York, for much less than it is really worth, with small payment down, or would take a partner with small capital to take charge of and run the mill. Address "B," care of THE MILLING WORLD, Buffalo, N. Y. 1720

FOR SALE.

Several good second-hand and new turbines of various styles. Second-hand price list and descriptive matter and prices of our new machines sent free. Every one interested in the shortest route to successful milling on rolls or in grinding corn and feed with the least expense of power, should address us before buying.

FLENNIKEN TURBINE CO.,
Dubuque, Iowa.

MILL MACHINERY FOR SALE.

One No. 0 Standard Combined Separator, Smutter and Brush Machine; new, best make.
One 20-Inch Under-Runner Portable Mill, French Buhr Stone, capacity 10 to 12 bushels per hour; new, best make.
One 14-Inch Vertical Feed Mill; best make, new, a bargain.
One No. 6 Dustless Separator; new, a bargain.
One No. 1 Full Rigged Combined Dustless Separator; new, a bargain.
Four Corn Cob Crushers, right or left hand, driven from above or below, best make; capacity 40 to 60 bushels per hour.
Three No. 1 Corn Shellers, capacity 200 to 300 bushels per hour; new.
One No. 2 Purifier. New. Best make. A bargain.
For particulars address, FRANK SMITH, care of THE MILLING WORLD, Buffalo, N. Y. 5tf

FOR RENT.

Clinton Mills, at Black Rock, Buffalo, for rent on reasonable terms, recently repaired and put in good order. Apply to CHAS. DANIELS, over 311 Main Street, Buffalo, N. Y. 8tf

FOR SALE.

Full roller mill, 100-hl. steam power; also, a water power buhr mill, dwelling and ten acres of land. Prices low on either and terms easy. Address, J. R. ENGLISH, Piketon, Ohio. 10

WANTED.

A miller who can purchase an interest. Business rapidly increasing. Must enlarge mill and add machinery. Only mill in this, Gray's Harbor, region. Good water-power. Address, REV. HIRAM F. WHITE, Elma, Chehalis County, Washington Territory.

We mention the fact casually, and we ask our readers not to give it away, that we have seen a "reel revolution in milling." This time there is no possible doubt. The "reel revolution in milling" is an accomplished fact, an eternal verity.

THE avaricious British syndicatists have decided not to purchase the St. Louis Elevator properties on which they held options. Those properties must have made a poor showing, indeed, to discourage the British syndicatist or his agent.

NEW YORK City has raised a bona fide fund of \$5,250,000 to secure the World's Fair in 1892. That fair promises to be a great one, and it is to be hoped that the millers of the United States will make a display in it that will be worthy of their great industry. Such a display will be seen by millions, and it will prove profitable.

EVIDENTLY laboring under the fear that THE MILLING WORLD misunderstands the grain situation or misconstrues the statistics of the trade, a correspondent writes and informs us that "the statistical position of wheat is really very strong," that is, as he explains it, "it is very strong in the United States from the simple fact that we have enough wheat for our own greatest possible needs, and a large surplus to spare to importing countries as fast as they call for it. We are strong in wheat, very strong, indeed." Our correspondent will accept our thanks for his kindly interest in us and for his explanation, which is at least as clear as mud. When we get muddled, we know now where to go for illumination, especially when the statistical position of wheat is concerned.

AN Austro-Hungarian cotemporary seems to think that THE MILLING WORLD, in a recent editorial utterance, made an attack on the quality of Hungarian flour. Our cotemporary mistakes us entirely. We have made no attack on Hungarian flour, and we have none to make. All that we did was to defend American flour from manifestly unjust and un-called-for attacks by European critics. It is the general European custom in criticising American flour to use about the following formula: 1. The best American flour is "respectable offal." 2. Only "low-grade flour" is sent from the United States to Europe. 3. The poorest Hungarian flour is better than the best American flour. These propositions are almost word for word as printed by European journals, and we protest against their insincerity, injustice and dishonesty, even though our protestations seem to reflect upon even the immaculate Hungarian flours. If our Budapest critic will explain the justice of making a sweeping comparison of "fine" Hungarian with "low-grade" American, and of drawing a conclusion outrageously unjust to American flours in no way concerned in the comparison, and absolutely unknown to the persons making the comparison, it will perhaps be possible for us to understand his far-fetched conclusion that we have been attacking Hungarian flour. We protest over and over against the unfair comparisons made by men who have never seen a pound of the really fine flour that is generally used in the United States. Our Austro-Hungarian friends need not be oversensitive about their fine flour. All sane and honest judges admit freely that it is very fine flour, and the same persons will as freely admit that the stock comparison made by European critics in general is grossly unfair to American flour. Against that unfairness we protest.

MILLERS

Wanting Bolting Cloths should write for discounts on same before purchasing elsewhere to

SAMUEL CAREY
17 Broadway New York.

A SAW-FLY BORER IN WHEAT.

I.

Following is the description of a saw-fly borer in wheat given by John Henry Comstock, professor of entomology in the college of agriculture, Cornell University, Ithaca, N. Y., in the bulletin of the agricultural experiment station for November, 1889. We are indebted to the institution for the plates. This borer is a new one in the United States, and millers and farmers alike will read the description with interest. Professor Comstock's article follows: An insect destructive to wheat, but previously unknown in this country, has appeared in considerable numbers on the Cornell University Farm. I do not know of its occurrence anywhere else in this State; but as it is extremely abundant here, it is doubtless spread over a considerable area. It was first observed in this locality two years ago, by one of our students, the late Mr. S. H. Crossman, while making an investigation of wheat insects. Mr. Crossman's studies were sadly terminated before he had

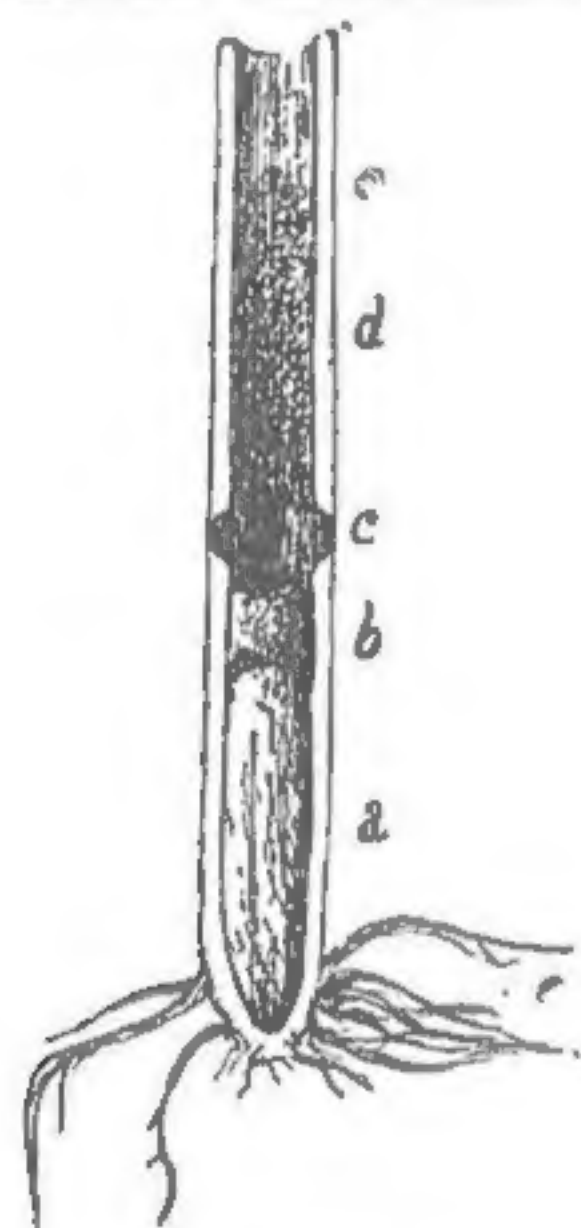


FIG. 1.—Base of an infested straw. *a*, cocoon; *b*, plug of borings; *c*, circular cut; *d*, scattered borings.

carried his investigations of this species very far; and it has fallen to me to continue the work begun by him.

On examining the stalks of wheat at harvest time by splitting them throughout their length, it was found that some of them had been tunneled by an insect larva. This larva had eaten a passage through each of the joints so that it could pass freely from one end of the cavity of the straw to the other. In addition to tunneling the joints they had also fed more or less on the inner surface of the straw between the joints, and, scattered throughout the entire length of the cavity of the straw, except the smaller part near the head, were to be seen yellowish particles, the excrement of the insect.

If infested straws be examined a week or ten days before the ripening of the wheat, the cause of this injury can be found at work within them. It is at that time a yellowish, milky-white worm, varying in size from $\frac{1}{8}$ inch (5 mm.) to $\frac{1}{2}$ inch (12 mm.) in length. The smaller ones may not have

bored through a single joint; while the larger ones will have tunneled all of them, except, perhaps, the one next to the ground. (For a detailed description of this larva see note 2.) As the grain becomes ripe the larva works its way toward the ground; and at the time of the harvest the greater number of them have penetrated to the root. (For further details see note 4.) Here in the lowest part of the cavity of the straw they make preparations for passing the winter and even for their escape from the straw the following year. This last is done by cutting the straw circularly on the inside, nearly severing it a short distance, varying from one half inch to one inch, from the ground. Fig. 1, *c*.

If the wheat were growing wild, the winter winds would cause the stalk to break off at this point; and thus the insect after it had reached the adult state in the following year could easily escape; while, but for this cut, it would be very liable to be imprisoned within the straw. But under ordinary circumstances the straw is cut by the reaper before it is broken off at this point, and consequently that breaking off does not occur.



A SAW-FLY BORER IN WHEAT.—*Cephus pygmaeus*.

a, female beginning to oviposit; *b*, female with ovipositor inserted in straw; *c*, insect with wings expanded; *d*, straws cut by the larva; *e*, larva in cell at base of straw.

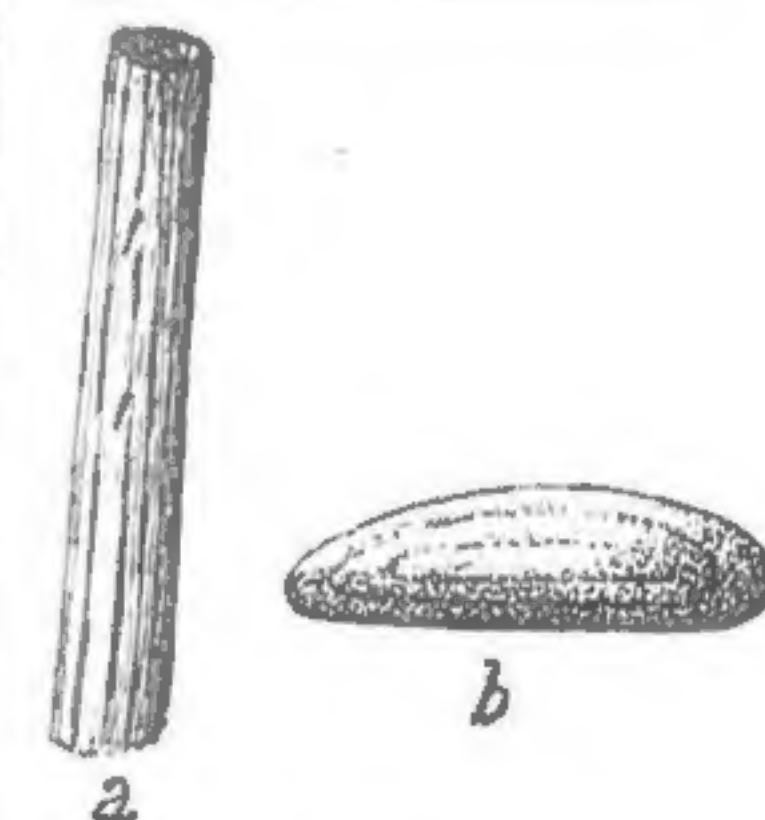


FIG. 2.—*a*, section of straw showing form of slits made by the ovipositor; *b*, egg, greatly enlarged.

If, however, there is a strong wind just before the harvest and after the straws have been cut in this manner by the insects, they are very liable to break off; the lodging of the grain may, therefore, be largely due to the injuries of this insect. In one field just before the harvest I observed a large number of isolated straws lying in

a horizontal position; there was not the general breaking down of the grain characteristic of wind and rain, but distributed through the grain that was standing there were a large number of isolated straws that were lodged. A careful examination showed that this breaking down of the grain, in 35 per cent. of the cases, was directly due to injuries by this insect. In many cases the straws had been broken off a considerable distance above the ground and before the larva had made the characteristic circular cut near the root. An examination of these straws showed that the larva had eaten all or nearly all of the softer inner part of the straw for a short distance, thus making a weak place which was easily broken. As a rule, however, the larva ob-

tains the greater part of its nourishment by tunneling the joints of the straw and does not eat enough of the straw in any place to cause it to break, until they make the circular cut near the ground.

After the circular cut has been made, the larva fills the cavity of the straw just below it for a short distance with a plug of borings. Fig. 1, b. Between this plug and the lower end of the cavity of the straw there is a place, measuring about one half inch in length (10 mm. to 15 mm.). Plate, c. It is here that the insect passes the winter. Immediately after cutting the straw and making this plug the larva makes a cocoon by lining the walls of this space with a layer of silk. Fig. 1, a. This layer is thin but very firm and more or less parchment-like; it can, however, be broken with slight difficulty, being somewhat brittle. Within this cocoon, which remains in the stubble after the grain is cut, the insect passes the winter, in the larval state. It changes to a pupa during March or April; (See note 5.) and sometime during the month of May the adult insect appears. The exact date of the appearance of the insect depends upon the nature of the weather. This year from pupae collected on the 23d of April and brought into the Insectary, the adults emerged from the 8th to the 10th of May; while the insects left in the fields were ten days later in emerging.

The adult insect is a four-winged fly belonging to the order *Hymenoptera*, the order that includes the bees, wasps and ants; and it is a member of the family *Tenthredinidae* of this order, a family comprising the insects commonly known as Saw-flies. This popular name refers to the fact that in this family the female insects are furnished with a more or less saw-like organ. This arises near the caudal end of the body and is the ovipositor. By means of it the insects are able to make incisions in the tissues of plants for the reception of their eggs. The Saw-fly Borer of wheat is known to entomologists as *Cephus Pygmaeus*. The form and appearance of the adult are represented on the accompanying plate. In this stage it is of a shining black color, banded and spotted with yellow. The male measures one-third inch (8 mm.) in length; the female two-fifths inch (10 mm.) (For a detailed description see note 1.).

Soon after the adults emerge from the stubble, they pair and the females begin to oviposit. Thus in our breeding-cages the adults which emerged from the 8th to the 10th of May began to pair on the 10th and the females were ovipositing on the 13th. The appearance of the insects in large numbers in the field took place four or five days before the heads of wheat began to appear, *i. e.*, before they began to project from the sheath formed by the upper leaf. But it was not until the latter date that the flies had migrated to the wheat fields in considerable numbers. It will be noted that, as the insect winters in the stubble of wheat and as in this region one crop of wheat rarely follows another, it is necessary for the adults, when they emerge, to migrate a greater or less distance in search of a wheat field, in which to oviposit. We found that the female migrated to the wheat fields first; but they were almost immediately followed by the males.

The specimens which I reared in breeding-cages in which wheat was growing laid their eggs at various distances from the ground. Many observations, both in the Insectary and in the field, convinced me that these insects oviposit anywhere along the larger part of the straw where it is hollow, but chiefly in the upper portion. (See Table 1) In each case that I observed, the female stood with her head towards the ground in the position indicated in the Plate, at *a* and *b*. The making of the slit through the straw and the laying of the egg occupy about one minute of time. The slit made by the insect's ovipositor is so small that it can be detected only with difficulty. By carefully marking the point on a straw at which a female was seen to oviposit and then examining this point with a microscope, I was enabled to find the puncture. It is about one one-hundredth inch ($\frac{1}{100}$ mm.) in length, slightly enlarged at the upper end as shown in Fig. 2, a. The egg is pushed entirely through the wall of the straw and is left adhering loosely to the inside. It is of a milky white color, one twenty-fifth inch (1 mm.) in length, and one

seventy-fifth inch ($\frac{1}{75}$ mm.) in width at its widest place. It is oblong and slightly curved, as shown in Fig. 2, b.

In our breeding-cages the females laid many eggs in the same stalk. This was to be expected, owing to the large number of insects confined with a small amount of grain; but I was surprised frequently to observe a female lay an egg and then move down the same stalk two or three inches and repeat the operation without an effort to seek a fresh stalk. Although many eggs were laid in some of the stalks in our breeding cages, in no instance did more than one larva become fully grown; and no trace of the other larvae could be found. I have found in the fields stalks containing two larvae, but these larvae were separated by a joint of the straw. In no instance, after all the joints of a straw had been tunneled, have I found more than a single larva. It is probable that, where more than one egg is laid in a stalk, the stronger larva destroys the others.

The eggs hatch soon after they are laid, and the larvae may develop quite rapidly. A larva, which hatched from an egg laid on May 13th, was on May 24th about one-quarter inch (6 mm.) in length and had bored through the principal joint of the straw, and it had also penetrated the upper solid part of the stalk. Four days later another larva, which also hatched from an egg laid May 13th, was found to have tunneled the entire length of the stalk in which it was. (See note 4.) In no case did I find any external indication of the presence of a larva in a wheat stalk until the larva was nearly fully grown and had tunneled the stalk down to the first joint. At this time there is frequently a discoloration of the stalks just below the injured joints. This was observed during the first week in July. The wheat had then reached its full height and the grain was in the milk.

MILLING PATENTS.

Among the patents issued December 17, 1889, are the following:

Tom Parkinson and Geo. M. Parkinson, Doncaster, England, No. 417,273, an apparatus for drying, heating, cooling or purifying grain, includes in claim 1 the combination, with a perforated hollow shelf, to the interior of which the heating or cooling medium is admitted, of a screw-creeper working in the interior of such shelf for the purpose of removing the matters entering into the shelf, and in claim 2 the combination of a series of alternately-inclined perforated superposed hollow shelves adapted to receive the substance to be treated upon their perforated surfaces, each shelf being provided with a series of strickling-bars, and one or more internal conveyors.

Perley T. Couch, Philadelphia, Pa., No. 417,409, a roller-mill adjustment, described in the following claims: 1. The combination of the main frame, the pair of rolls, one of which is adjustable relatively to the other, the endwise-movable rods connected with the movable pillow-blocks of the adjustable roll, the guide lugs or bearings for said rods, the springs acting with a tendency to force the adjustable roll toward the other roll, the fixed and rocking cam-faced sleeves, the levers rigid with said rocking sleeves, the threaded and turning adjusting-rod, the bearing limiting endwise movement of the adjusting-rod, and the nuts on the adjusting-rod, to which are jointed the levers of the cam-faced rocking sleeve. 2. The combination of the main frame, the pair of rolls, the adjustable pillow-blocks in which one of said rolls has its bearings, the endwise-movable rods connected with said pillow-blocks, the guide lugs or bearings for said rods, the springs acting with a tendency to force the adjustable-roll toward the other roll, the fixed and rocking cam-faced sleeves, the levers rigid with said rocking-sleeves, the adjusting-rod, to which are jointed the levers of the cam-faced rocking-sleeves, the hand-lever, its detent devices, the rock-shaft to which the hand-lever is attached, the arm on said rock-shaft, and the link jointed at one end on the adjusting-rod and having the sliding or pin-and-slot connection at its opposite end with the rock-shaft arm.

Peter Hobler, Chicago, Ill., No. 417,423, a portable grinding-mill, described in the following claims: 1. The combination of the base, having auxiliary legs curving upwardly

and inwardly and uniting to form the step-box, the main legs bolted to the base, the grinding mechanism supported by said legs, the mill-spindle stepped in box and having a bevel-wheel, and a main shaft having a wheel. 2. The combination of the casing, the rotating grinding-disk within said casing, a cap, having an arched hopper formed upon the top and the stationary grinding-disk secured to the bottom or under side, the adjusting-bolts secured to the casing the arch-bar, secured to the bolts, and an adjusting-screw secured to the arch of the hopper and screwed through the arch-bar.

John A. Wahlstrom, Wakefield, Nebr., No. 417,453, a middlings-purifier, described in the following claims: 1. The combination, in a middlings-purifier, with the parallel reciprocating troughs, of longitudinally-aligned conical collectors opening at their lower smaller ends into said troughs and having their forward sides provided with slots. 2. The combination, with the casing, having a cover, the air-channel within the cover, and the blower or fan communicating with said channel or passage, of pairs of conical dust-collectors, slotted in their forward sides, each pair having a transverse plate, said plates forming the bottom of said air-channel, the parallel reciprocating dust-troughs, into which the lower smaller end of the collectors discharge, and the shaking screen under said troughs.

Zachariah W. Murphy, Harrison, Ark., No. 417,498, a millstone feeder and cooler.

Anson E. Clay, Newburg, Ia., No. 417,543, a grain-meter.

Valentin Weber, Princeville, Ind., and Jas. R. Harrison, Peoria, Ill., No. 417,614, a grain-elevator.

John M. Case, Columbus, Ohio, assignor to the Case Mfg. Co., same place, No. 417,629, a gradual-reduction machine, whose points are embraced in the following claim: In a portable gradual reduction machine, the combination, with a suitable casing, of a grain-scourer and an air-trunk, a fan and a suction-spout communicating with the discharge of the grain-scourer, all located on top of one end of the casing and having a spout communicating with the interior of the casing, directly below a pair of horizontal shafts centrally located in the upper part of the casing, said shafts carrying, respectively, co-operating fast and slow grinding-rolls located on their opposite ends in tight housings formed in offsets in the casing by suitable partitions, said pairs of rolls being dressed as first and second break-rolls, and the first break-rolls being directly beneath and fed by the spout from the scourer, a pair of graded sifting-bolts located centrally beneath and parallel to the shafts of the rolls, tailing in opposite directions, and each being fed by a spout from the grinding-rolls adjacent to its head, a pair of collectors and separating-conveyers located beneath the respective bolts and having suitable spouts, a hopper located on top of the casing at the opposite end to the grain-scourer, and feeding the second break-roll, and an elevator communicating between the tailing from the bolt of the first break-rolls and the hopper for feeding the second break-rolls.

John M. Case, Columbus, O., assignor to the Case Mfg. Co., same place, No. 417,630, a rotary bolt, whose points are set forth in the following specifications: 1. In a reel, the combination of the shaft, a pair of spiders situated at the desired distances apart and having arms projecting therefrom, the hoops secured to the extremities of said arms, the rigid longitudinal troughs or buckets supported by said spiders, the braces situated at suitable distances apart and projecting outward from said buckets, and hoops secured to the extremities of said braces, and the bolting-cloth stretched over said hoops. 2. A spider constructed of the inner collar, the spokes, and the outer rim having any desired number of crotches formed by the branches, said branches forming braces at the backs of the branches. 3. A spider constructed of the polygonal inner collar, the radial spokes, the branches, constituting an outer rim, and the short branches extending from said rim at an angle to the branches, all of said parts being formed integrally. 4. The combination of the spider formed with the crotches, the boards secured at an angle to each other in said crotches and having their meeting edges secured together, whereby they are both prevented from

bending, and the braces secured to the boards and carrying the hoops on which is stretched the bolting-cloth, whereby a stiff support for said hoops is provided.

John M. Case, Columbus, O., assignor to the Case Mfg. Co., same place, No. 417,631, a malt-brushing machine, described in the following claim: The combination of an oscillating longitudinal feed-box having a broad delivery-spout, a stationary perforated concave cloth, onto which the feed-box empties, a rotary brushing-cylinder above the cloth acting upon the material, a longitudinal angular guide spout or passage for catching the material when thrown up by the brush and directing it downward, and a narrow vertical suction-spout, into which the spout empties, having a suitable fan, and the openings for inlet of air just below spout.

THIS BLEW OVER THE ATLANTIC!

A TALE OF A CHARGE.

The miller had left for an "hour or two,"
And didn't come back for six,
As millers may, though it does not do
For juniors to play such tricks.
And I was given the mill in charge,
The mill and the men therein,
And my vanity bump it grew so large
That it tightened all my skin!

So I paced the floor, as the head one did,
With my hands behind my back,
And a firm set mouth and downcast lid,
And brow with importance black.

And I'd thrust my hand quite carelessly
Into sacks of this and that,
And then would I wipe ostentatiously
The sweat from my brow and hat!

Oh! everything ran in a beautiful way,
The rolls, and reels, and all,
No belts asked to slip, nor feeds to delay,
Nor aught for attention call.

Yet, why should it otherwise be, when I
Had hold of the helm, and knew
Where the shoals and shallows and quicksands lie,
And where storms their wildest blew?

And so I resolved that at any price
I'd seek for a foreman's place,
And never again be anyone's vice,
Nor second in any race.

The chief returned and proceeded quick
That to examine, and this,
With critical eye and ivory slick,
But nothing found he amiss,
Till he licked the bakers'—lo! it was mixed
With bran of most wondrous breadth!
I stood and stared like a fellow transfixed,
Scarce able to draw my breath!

"Oh, germ and gluten!" he said, quite wild,
"Oh, gluten and germ," said he.
"There will be the—to pay, my child,
'Tween the governor and thee!

For a storm will burst," said he, "more strong
Than those which the Yankees send
In cablegrams, and which sweep along
The wings of the press—and end."

And to end this tale—I thought it wise
With haste from the place to skip,
Likewise for a job to advertise,
But not for a foremanship.

Whang, in London "Millers' Gazette."

COTEMPORARY COMMENT.

Mr. James Curtis, of Moscow Mills, Mo., who is an investigator, believes that M. Touaillon, the millstone champion of Paris, is correct in his assertion that "flour is completely altered by being passed between rolls; that the starch and gluten are both injured, and with such flour panification is difficult." In support of this assertion, Mr. Curtis sends us an 8-ounce vial filled with mucilage extracted by himself from four pounds of roller-flour. The mucilage has about as good sticking and "smelling" qualities as the "Royal Crown," "Eclipse" or any other standard brand. Mr. Curtis holds that if the grinding of flour by smooth differential rolls generates sufficient heat to torrefy the starch and con-

vert it into dextrine that will make 8 ounces of bad smelling mucilage to every 4 pounds of flour, the smooth roll should be discarded and a method of reduction substituted that will operate less violently upon and not change the natural properties of the flour. "Flour," he says, "should not be made hot till it reaches the oven."—*Kansas City "Modern Miller."*

The American President's message has dissipated the hopes of the silver party, and the probable ultimate decline in the price of this article will affect Indian Exchange and may shake loose a little more wheat, but on the whole Indian shipments are likely now to fall off, especially those from Kurrachee to Liverpool. — *Liverpool "Corn Trade News," Dec. 5.*

Political opponents charge President Harrison with producing a time-serving and timorous Message, and allege that no decisive opinion is expressed on any one of the grave economic problems now exercising the American mind. A more unjustifiable and absurd accusation it would be difficult to make, and we are not surprised to learn that with the fuller discussion of the Message things have generally looked healthier in the States. So far, indeed, from the President of the republic having uttered an uncertain note, his language is, to our mind, unusually explicit. It will contrast favorably for spirit and decision with most of his predecessors' efforts and is certainly a great advance on our own Queen's Speech. — *London "Financial Times," Dec. 5.*

It was rumored at Chicago recently that the insurance companies would take no more risks on grain in elevators. They may for a short time refuse to take risks; but there is too much profit in the business to refuse it. It may be that this move was intended as a sort of warning to the elevator companies and grain dealers that the exorbitant rate which is charged at present would not be reduced. — *Chicago "American Elevator."*

The Kansas City & Southern Railroad Co., office Kansas City, Mo., will build a grain elevator 205x45 feet and 55 feet high, to have a capacity of 100,000 bushels, opposite Memphis, Tenn.

A NEW METHOD OF TREATING DISEASE.

HOSPITAL REMEDIES.

What are they? There is a new departure in the treatment of disease. It consists in the collection of the specifics used by noted specialists of Europe and America, and bringing them within the reach of all. For instance the treatment pursued by special physicians who treat indigestion, stomach and liver troubles only, was obtained and prepared. The treatment of other physicians, celebrated for curing catarrh was procured, and so on till these incomparable cures now include disease of the lungs, kidneys, female weakness, rheumatism and nervous debility.

This new method of "one remedy for one disease" must appeal to the common sense of all sufferers, many of whom have experienced the ill effects, and thoroughly realize the absurdity of the claims of Patent Medicines which are guaranteed to cure every ill out of a single bottle, and the use of which, as statistics prove, has ruined more stomachs than alcohol. A circular describing these new remedies is sent free on receipt of stamp to pay postage by Hospital Remedy Company, Toronto, Canada, sole proprietors.

SPECIAL NOTICES:

BOLTING CLOTH.

Do not order your cloth until you have conferred with us. It will pay you, both in point of quality and price. We are prepared with special facilities for this work. Write us before you order.

CASE MANUFACTURING CO.

Columbus, Ohio.

Office and Factory, 5th Street, north of Naughten.

TOLEDO MILL PICKS AND STONE TOOL MFG. CO.

Manufacturer

and Dresser of

MILL PICKS.

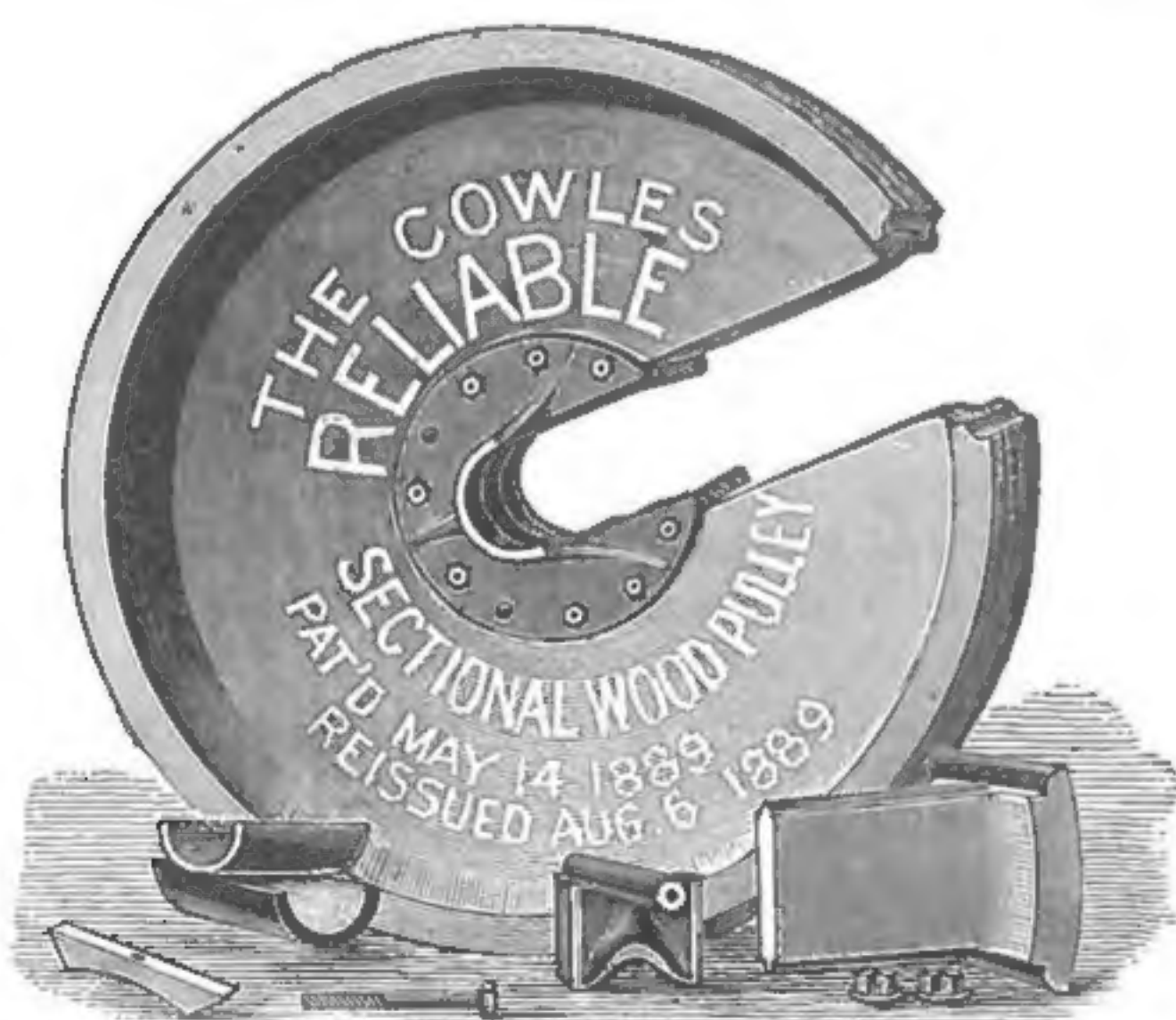
Made of the best double-refined English cast steel. All work guaranteed. For terms and warranty, address, GEO. W. HEARTLEY, No. 297 St. Clair Street, Toledo, Ohio. Send for Circular.

N. B.—All Mill Picks ground and ready for use (both old and new) before leaving the shop. No time and money lost grinding rough and newly dressed Picks. All come to hand ready for use.

ALSO MANUFACTURERS OF

Shafting, Pulleys, Hangers, Coupling, Machine and Jobbing, Etc., Etc.

THE COWLES "RELIABLE" SECTIONAL WOOD PULLEY



PATENTED ALSO IN CANADA AND EUROPE.

WRITE FOR FULL PARTICULARS.

The Cowles "Reliable" Sectional Wood Pulley is the best, strongest, lightest, and quickest adjusted of any Pulley made. It is balanced from running center, runs in its own displacement of air, requires less power and Reduces Fire Risk, making it the only perfect Pulley made. It is especially adapted for Electric Light Plants. The only Pulley which, when once adjusted, requires no further attention. The only Pulley adapted to all places where Pulleys are used. The Cowles "Reliable" Pulley always runs true.

EDWARD GERMAIN, SOLE MANUFACTURER, SAGINAW, MICH., U.S.A.



BEAUTIFUL DISHES MADE FROM SLAGS.—Extremely beautiful vessels are being made in Colorado from the slags obtained from the gold, silver and copper smelting works. The slags undergo certain processes of smelting, and the mixture is then poured into moulds. A peculiar kind of metallic glass is produced, which is as strong as cast-iron and of light weight, to which any shape can be given, the color resembling an opal sprinkled over with splinters of onyx.

GENERAL NOTES.

ACCORDING to a Manchester, England, newspaper, wages for certain sorts of skilled labor in England must be exceedingly low. Following are some advertisements showing how salaries range.

WANTED—Young man as ledger clerk, well up in accounts and knowledge of short-hand; wages commence 12s. Apply, letter only, Manager Harrop's, 55 Tib st., Manchester.

REQUIRED—In Penkeltan a morning governess for a little girl of 7; salary 10 guineas per annum; state age, qualifications, &c. Address R. 54, at the printer's.

BOOK-KEEPER WANTED—Must be good short-hand; wages 20s. Address W. 61, at the printer's.

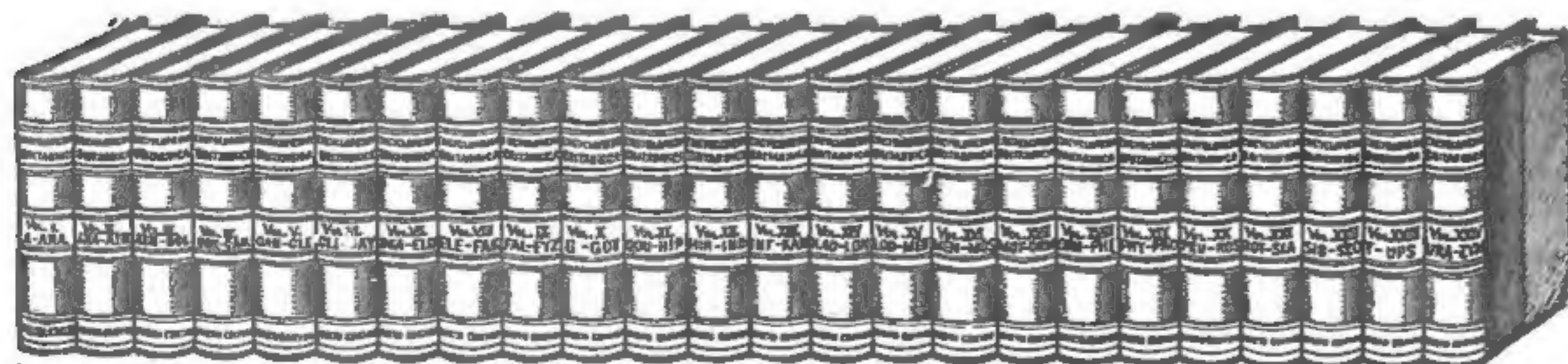
Turned into dollars and cents, these wages mean \$3 and \$5 a week for a good short-hand writer and skilled book-keeper combined, and \$50 a year for an educated teacher. These are "free-trade" wages.

BREADSTUFF EXPORTATION.

November exportations of breadstuffs from the United States showed some improvement over those of the same month last year in totals, and some changes are visible in the details. The month's exports included 173,075 bushels of barley, against 221,305 bushels last year; corn 4,617,338 bushels, against 3,375,651; corn-meal 37,295 barrels, against 35,480; oats 133,772 bushels, against 65,568; oatmeal 1,141,931 pounds, against 908,513; rye 173,451 bushels, against nothing; wheat 4,218,134 bushels, against 3,342,707; wheat flour 918,450 barrels, against 589,443. During the five months of the current fiscal year ending November 30 the exports, compared with the same period last year, included: barley 798,473 bushels, against 1,042,439; corn 27,145,149 bushels, against 16,522,320; corn-meal 159,821 barrels, against 135,811; oatmeal 8,442,663 pounds, against 2,187,012; wheat 22,269,288 bushels, against 24,957,736; wheat flour 4,704,394 barrels, against 4,175,762. The values of the exports in the various lines for November, 1889, and for the five months ended November 30, 1889, in comparison with the corresponding month and period in 1888, are shown in the following table:

	Nov., 1889.	Nov., 1888.	5 Mos. to Nov. 30, 1889.	5 Mos. to Nov. 30, 1888.
Wheat grain....	\$3,460,128	\$3,188,120	\$18,671,032	\$22,800,657
Wheat flour.....	4,217,867	5,044,609	22,321,193	19,858,547
Corn.....	1,996,879	1,733,220	11,737,104	8,949,083
Oats.....	37,985	26,843	354,623	113,271
Oatmeal.....	37,241	22,924	298,881	54,056
Rye.....	94,989	nil	338,005	42,034
Corn-meal.....	91,893	93,308	402,661	382,688
Barley.....	116,469	155,365	458,541	638,340
Total.....	\$10,053,446	\$8,264,389	\$54,582,040	\$52,738,676

A LITERARY MARVEL,—\$2.50 PER VOLUME,



We publish the Popular Reprint of the **ENCYCLOPEDIA BRITANNICA** from latest English edition, at \$2.50 per volume, being one-third the price of the original and one-half the price of the Scribner edition of the same work. We have reproduced all illustrations, maps and texts, page for page and volume for volume. Complete sets of 24 vols. now ready for delivery on EASY PAYMENTS. The greatest work of the kind in the English language. A subscriber writes: "The best is now the cheapest." All high priced editions of this work are in our office for comparison. Circulars and sample pages mailed. Agents wanted,

THE HENRY G. ALLEN COMPANY,

739 & 741 Broadway, New York; & 126 Washington St., Chicago.

The total value of all the breadstuffs exported during the first 11 months of 1889 is \$111,811,749, against \$103,230,622 for the same months in 1888. This gain in total of \$8,581,127 has been made in spite of the fact that wheat has ruled during those months from 15 to 25 cents per bushel lower this year than last, while wheat flour, corn, oats and oatmeal also have ruled much cheaper. The experts both at home and abroad predict that Great Britain will during the next 5 months require large imports of American wheat, but, in case the Southern Hemisphere crops turn out as well as they are now said to promise, it is not easy to understand why the European countries should raise their demand upon the United States above its present low level, unless the American wheat is so much better than any other. The European importers assert that it is not better, and that they can do very well with their present supplies of Indian, Russian and other wheats. Yet, if we believe the statisticians, wheat is "very strong statistically," notwithstanding the nearly due Southern Hemisphere crop, the large available surplus in Russia, the still important shipments from India, the lack of imports into France and the now admittedly enormous crop on hand in the United States. Plato once said: "Strange are the ways of words. Words may make this way. Words may make that way. Strange are the ways of words." Substitute "crop figures" for "words" in the Platonian utterance, and there results a nineteenth-century application of an antique saw, whose teeth are sharp enough to slit the skull of even a nineteenth-century crop statistician and open up his cerebral substance to the value of facts opposed to theories.

Beside the breadstuff exports, account should be taken also of the provisions exported, the production of which means the use of large quantities of grain as food. During November the exports of beef, hog and dairy products amounted to \$9,808,289, against \$6,335,895 in 1888. For the first 11 months of 1889 the total was \$105,358,494, against \$77,191,435 in 1888. On the whole, although in the items of wheat grain and flour for export there might be a better state of affairs, the situation in breadstuffs and provisions trades is good. It is doubtless better for the United States, all things considered, to have a surplus of agricultural products than to have a deficiency. There is small cause for complaint, even as things now stand, and if the situation improves as the statisticians declare it is sure to do, the producers of the country will have decided cause for rejoicing.

CATARRH.

CATARRHAL DEAFNESS—HAY FEVER.
A NEW HOME TREATMENT.

Sufferers are not generally aware that these diseases are contagious, or that they are due to the presence of living parasites in the lining membrane of the nose and eustachian tubes. Microscopic research, however, has proved this to be a fact, and the result of this discovery is that a simple remedy has been formulated whereby catarrh, catarrhal deafness and hay fever are permanently cured in from one to three simple applications made at home by the patient once in two weeks.

N. B.—This treatment is not a snuff or an ointment; both have been discarded by reputable physicians as injurious. A pamphlet explaining this new treatment is sent free on receipt of stamp to pay postage, by A. H. Dixon & Son, 337 and 339 West King street, Toronto, Canada.—*Christian Advocate.*

Sufferers from Catarrhal troubles should carefully read the above.

L. L. WHITLOCK,

Advertising Agent

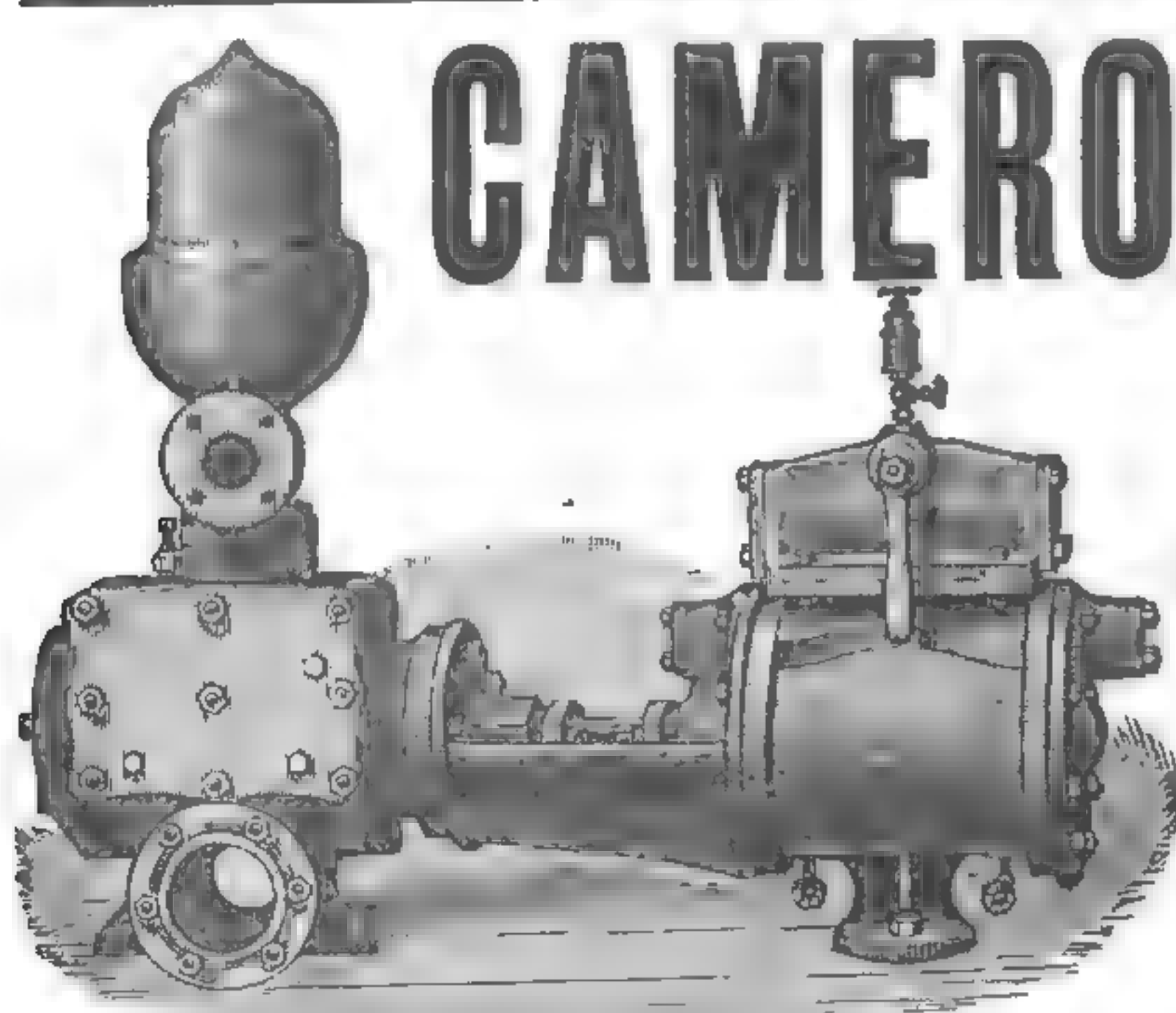
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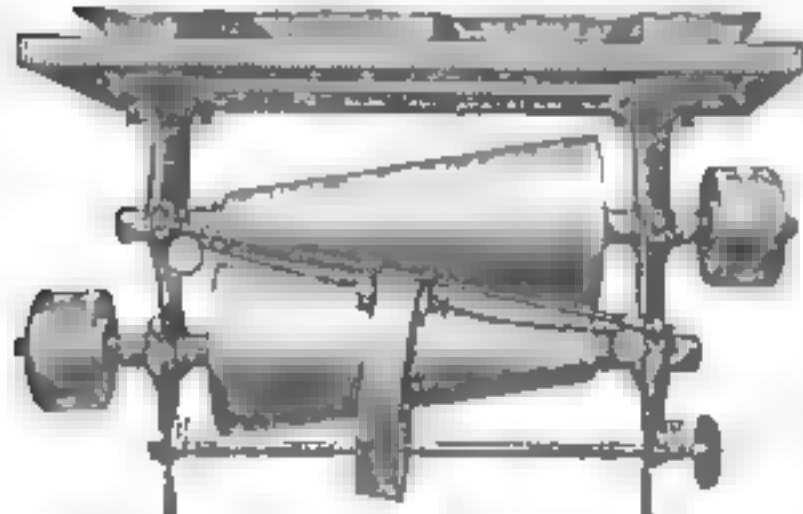
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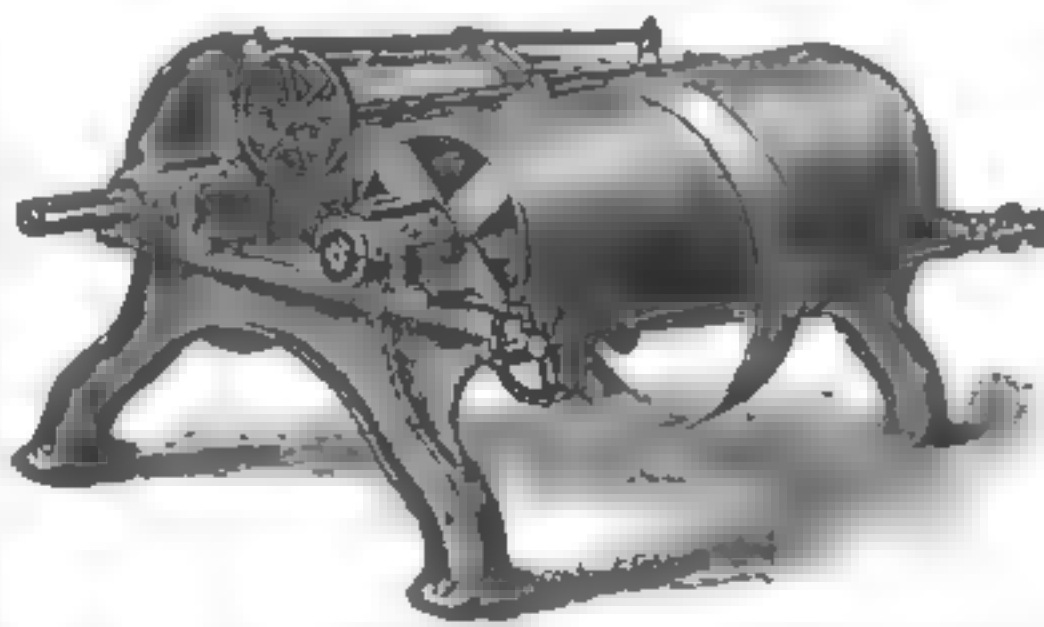
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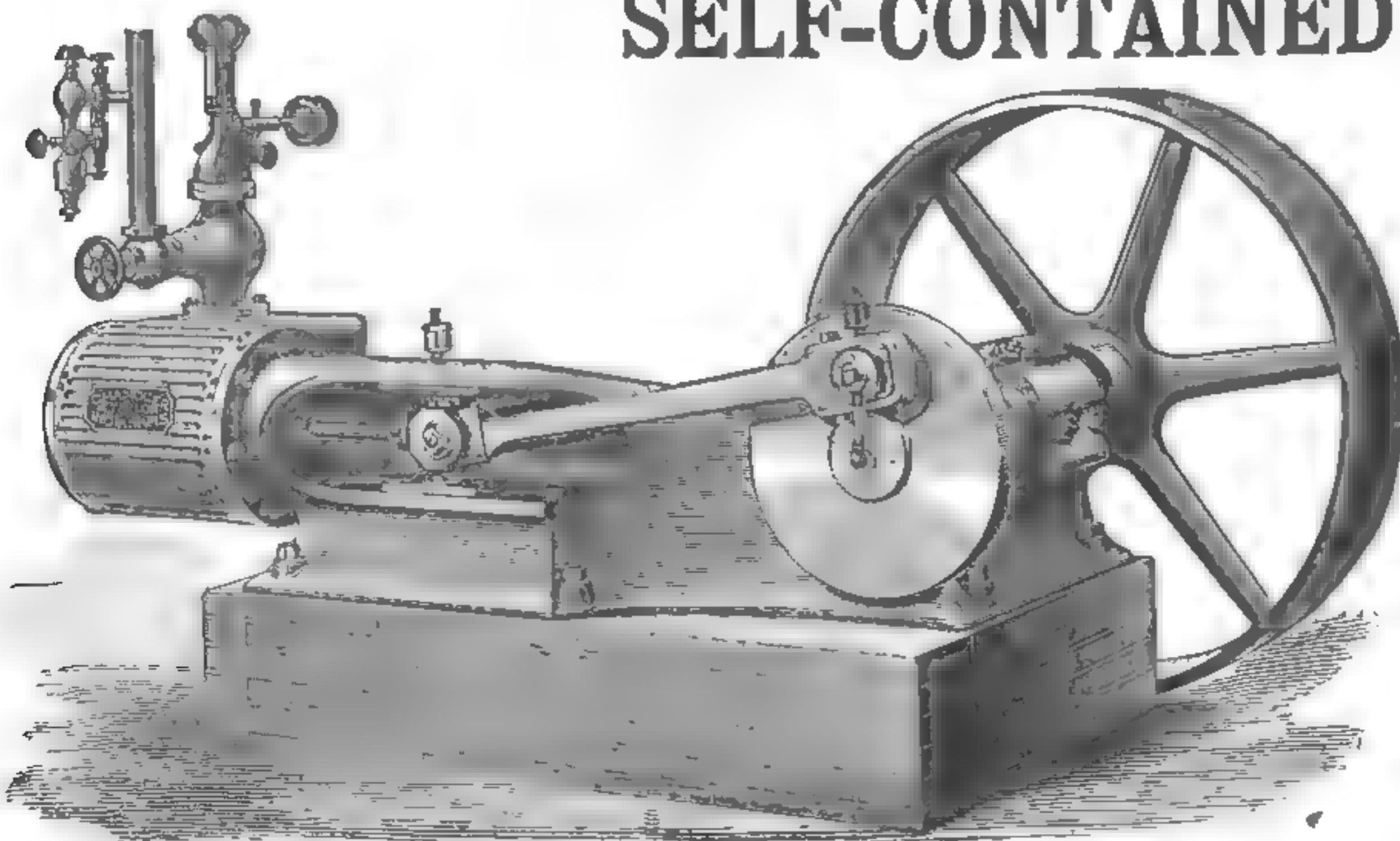
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Chandler & Taylor Co.
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Engines, Saw-Mills and Drain Tile Machinery a Specialty.

NOTES & NEWS

P. Reel, miller, Reel's Station, Ia., is dead.
 J. P. Fort's grist-mill, Macon, Ga., burned.
 G. E. Ayers, grist-mill, Pittsford, Vt., failed.
 Graham Bros.' mill, Tuckerman, Ark., burned.
 McGibben Bros., Lair, Ky., started a flour-mill.
 C. Lent, Farmwell, Va., improves his grist-mill.
 J. H. Baker, Cartersville, Ga., builds a flour-mill.
 E. L. Colburns flour-mill, Pine Bluff, Ark., burned.
 J. W. Graves' grist-mill, Leonardtown, Md., burned.
 L. Carmichael, Carmichael, S. C., builds a grist-mill.
 J. E. Clark, Mossy Creek, Tenn., improves flour-mill.
 T. Edmonson, mill, Berryville, Ark., sold to A. Harp.
 Mr. Edens, Red Springs, N. C., bought the Hodgkin mill.
 E. A. Reed, Oliver Springs, Tenn., will start a feed-mill.
 Kilpatrick & Coleman's grist-mill, Hazen, Ala., burned.
 Clifton, Tex., men are building a 50-barrel roller flouring-mill.
 J. Howe, Rhea Springs, Tenn., has remodeled his flouring-mill to rolls.
 The C. A. Gambrill Mfg. Co., Baltimore, Md., put in new flouring machinery.
 D. W. Raper, Edenton, N. C., builds a grist-mill and will want machinery.
 E. Engelmann, Union Bridge, Md., will put new machinery in his flouring-mill.
 T. M. Rogers, Concord, N. C., wants machinery for a new corn and flour mill.
 W. S. Fant, Flemingsburg, Ky., is building a flouring-mill at Pleasant Valley Mills.
 Springfield, Tenn., men have formed a stock company to build a roller flouring-mill.
 Kanode & Harless, millers, Blacksburg, Va., want a new water-wheel for their mill.
 F. P. Wager & Bros., Ouachita City, La., put in a new grist-mill machinery outfit.
 The Dayton, Tenn., Coal & Iron Co., Limited's, corn-mill burned; they rebuild at once.
 The Union Mill & Warehouse Co., Atlanta, Ga., want new flouring-mill machinery.
 Wright, Reaves & Co., Mayfield, Ky., are putting new machinery in their flouring-mill.
 Johnson City, Tenn., men project a 125-barrel roller flouring-mill; they will want machinery.
 Emmett Bros., millers, Hagerstown, Md., want a new 45-horse-power engine for their plant.
 The Phoenix Roller Mills, Sulphur Springs, Tex., burned; loss \$8,000; covered by insurance.
 J. Bibby & Bro., Charleston, W. Va., have equipped their flour-mill with new machinery.
 The Chewacla, Ala., Lime Works are building a large corn and grist mill at Graysville, Ga.
 The Burlingame, Kans., flour-mill and other property burned; loss \$25,000; insurance \$8,250.
 W. W. Hedges and others, of Decatur, Ala., will build a roller flouring-mill; machinery is wanted.
 Massey & Skaggs, Bowling Green, Ky., will build a 40-barrel roller flouring-mill near that town.
 Samuel Strite, Leitersburg, Md., is about to build a 25-barrel roller flouring-mill; machinery is wanted.
 Henry Reckord & Sons, flour-mill, Bel Air, Md., sold to J. H. Reckord for \$26,000. The sale included other property at Reckord.

The official estimate of this season's grain production in Great Britain is cabled as follows: Wheat 73,237,007 bushels; Barley 67,478,799 bushels; oats 113,548,967 bushels; the average yield per acre being 29.91 bushels, 31.81 bushels and 39.31 bushels respectively.

The value of the flour and grain imported into Canada from the United States for the first nine months of this year were: Flour, \$3,215,341; wheat, \$1,563,292; corn, \$2,967,156. The duty of 7½ cents per bushel upon corn is a serious tax upon Canadian farmers and millers, who require that article for stock feeding or grinding purposes, but it is not apparently checking importation.

The Exchange Elevator, Buffalo, N. Y., burned December 15, with about 215,000 bushels of barley and 6,000 bushels of wheat. The building and machinery were valued at \$100,000 and insured for \$60,000. The grain destroyed was worth about \$130,000, and it was partially insured. About 70 men are thrown out of work by the fire. The elevator was owned by the W. H. Greene estate and C. A. Bloomer.

Not long since "Old Hutch" gave a severe lecture to a newspaper representative on 'Change at Chicago for application of the disrespectful term by which he has so long been familiarly called. He insisted that an old gentleman like himself should be saluted and spoken of more deferentially. The *Daily News* and others of the local press have since then shown their sense of consideration by speaking of the speculator as "Mr. B. Peters Hutchison." This proved so pleasing to the old gentleman that as a mark of appreciation he abandoned his slouch hat and appeared on the Board under an elegant silk tile. This event was chronicled by the *Daily News* in an appropriate manner, from which we copy the following extract:

"Old Hutch" is dead, that good old man; we ne'er shall see him more.
 He used to wear an old slouch hat upon the B. T. floor;
 But now he's got a brand-new dice, likewise another name;
 Since Hutch began to put on style Chicago ain't the same.

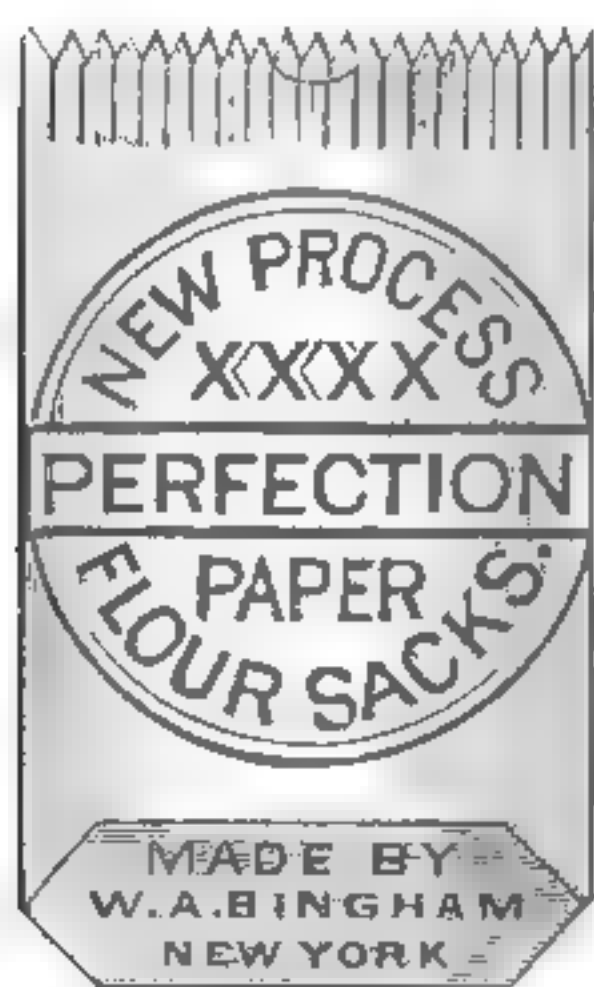
The *London Mark Lane Express* says: We have now a strong expectation of the wheat plant proving strong enough to resist any ordinary winter frosts, and after the cessation of growth which December imposes there should be a vigorous resumption of progress in the early spring. Reports from Central Europe announce that the autumn-sown wheat has made a most favorable start. Seldom has the vast grain-growing plateau of Hungary presented a more promising appearance, October sowings being now well up, with but few patches bare of green. The wireworm and fieldmice pests are more or less chronic in Central Europe, but the marks of their ravages are, this season, few and far between. The winter in Russia, up to a week ago, had been singularly mild, but the cold appears to be gradually strengthening. Good sowings of Azima wheat, however, have already been effected. In India the wheat promises a far better crop than that which was reaped in April last, but the corn fields of our Eastern possessions have yet to see the most critical months of their season pass over them. Any strong hopes of a good yield would consequently be premature.

Following is a compilation from official reports showing the exports of flour from the United States for years ending June 30, indicating in number of barrels the quantity exported to the United Kingdom, and to all other countries, in the last four years, and annual averages for two periods of five years each, 1876-80 and 1881-1885:

	U. Kingdom.	All others.	Total bls.
Average, 1876-80.....	2,028,913	2,544,615	4,573,524
Average, 1881-85.....	5,201,827	3,371,681	8,573,508
1885-86, 12 months.....	4,914,782	3,264,459	8,179,241
1886-87.....	7,632,071	3,886,378	11,518,449
1887-88.....	8,070,490	3,893,084	11,963,574
1888-89.....	5,281,738	4,093,065	9,374,803

The export of flour this season as far as reported compare as follows, stated in barrels:

	U. Kingdom,	All others.	Total, bls.
	1889.	1888.	1889.
July.....	497,838	520,905	855,736
August.....	611,032	515,750	1,073,257
September.....	481,115	604,632	955,206
October.....	632,922	596,049	1,126,107



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FLOUR SACKS.
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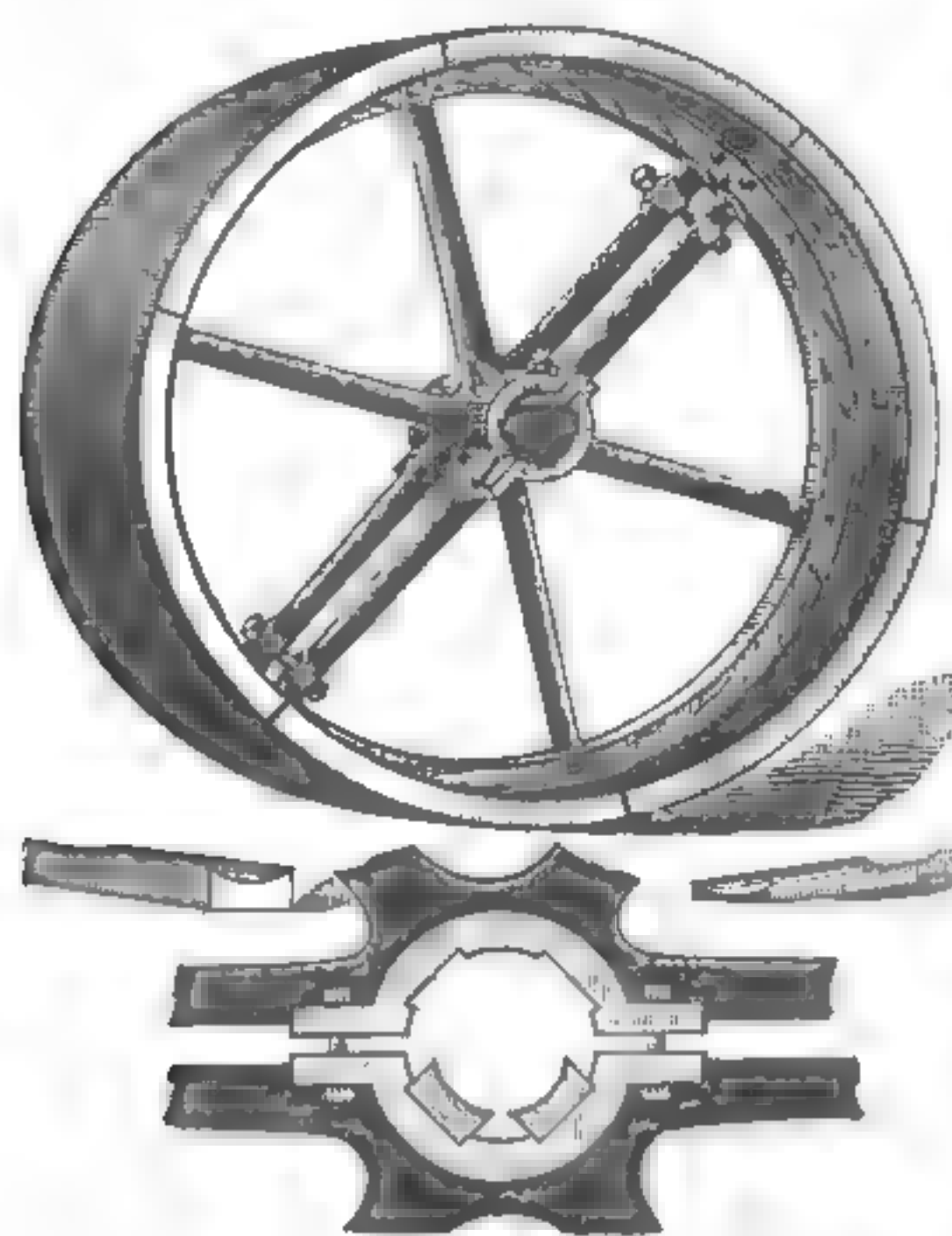


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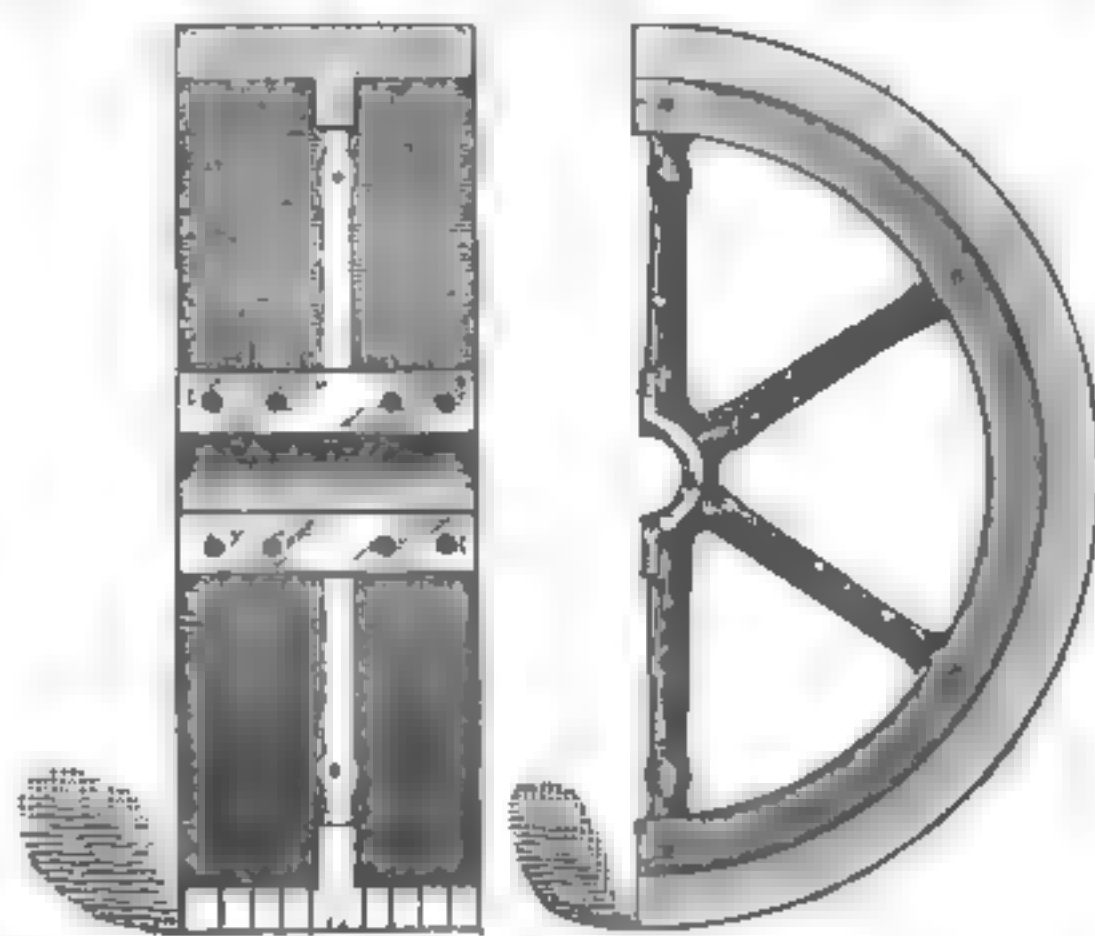
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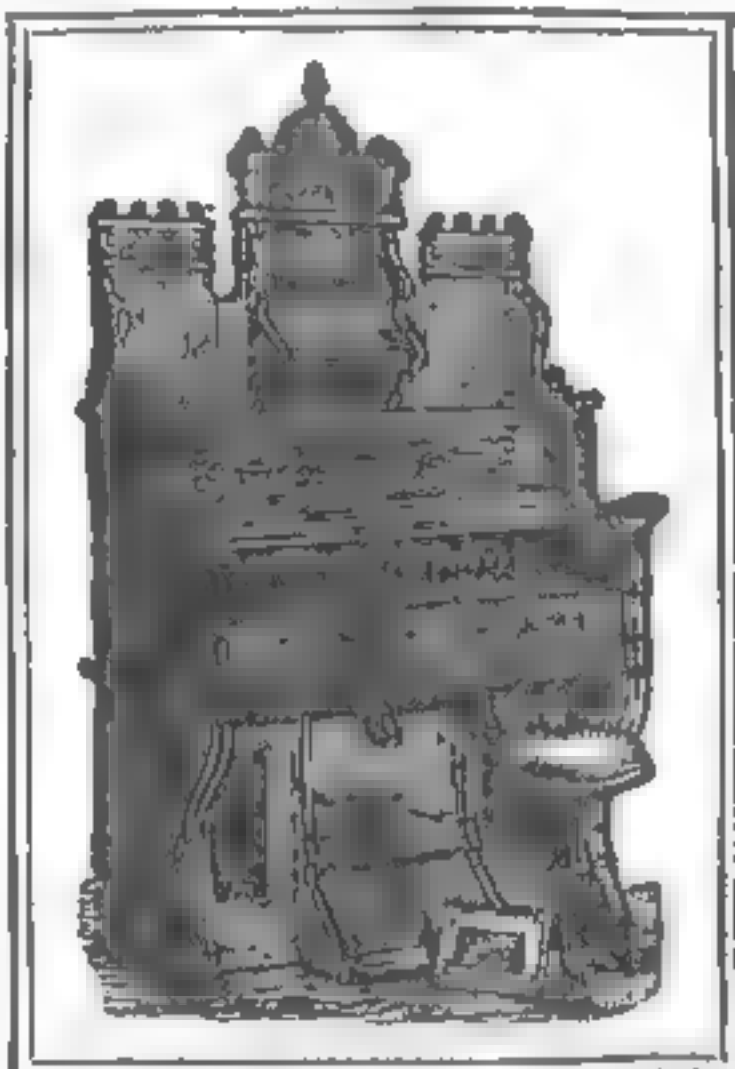


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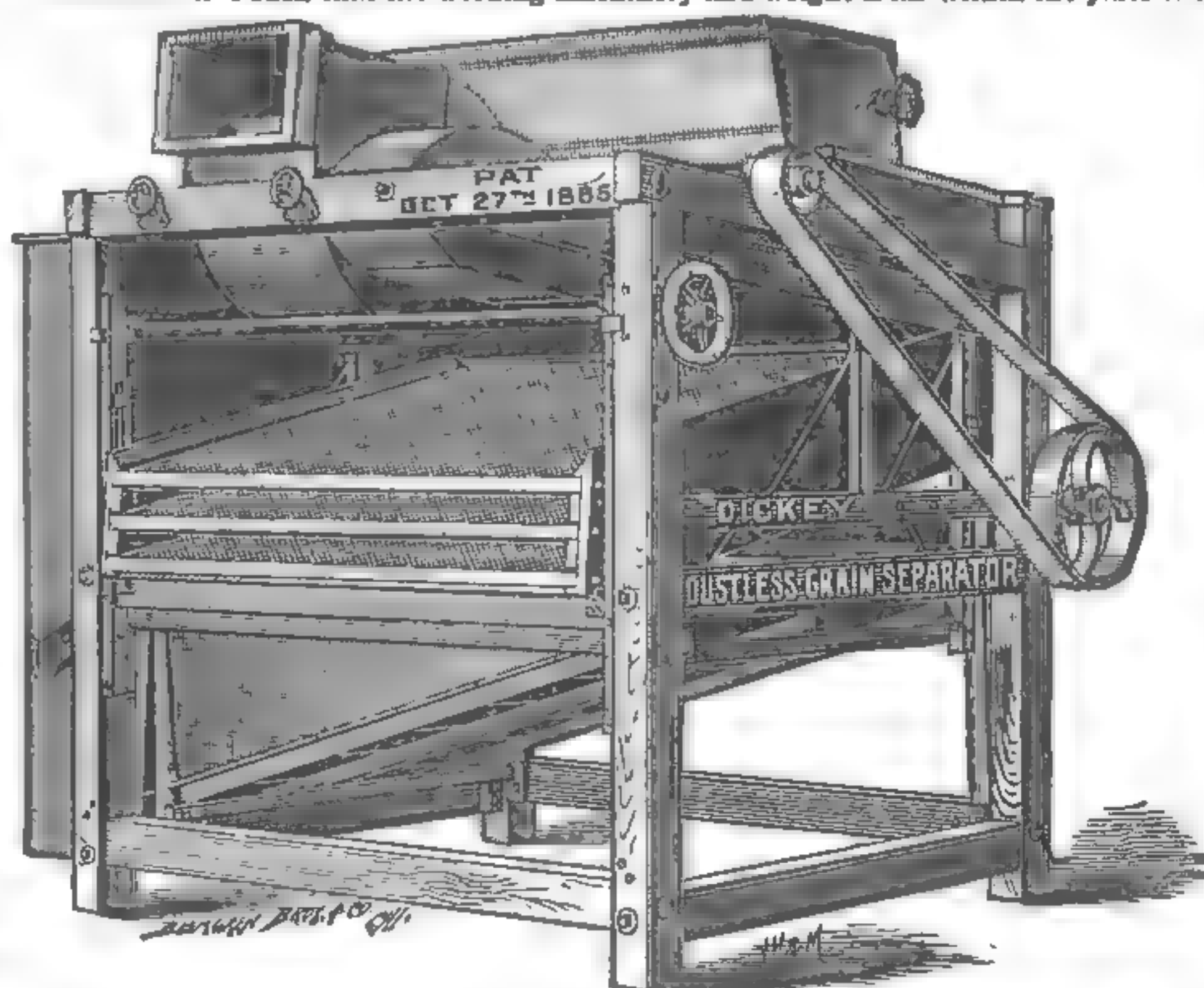
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This Separator is our latest and most perfect, and guaranteed to be the superior of any now on the market. This machine, as can be seen by the cut, is not a warehouse fanning mill with one patent attachment, but is Dustless Separator, made for the express purpose of thoroughly cleaning and separating all kinds of grain in large quantities; its construction is such that the working machinery and weight is all within the parts or anchors.

WE CLAIM FOR IT SUPERIORITY.



WE CLAIM FOR IT SUPERIORITY.

We claim for it Superiority over everything of the kind made, in simpleness, durability, saving of power, capacity and cost of construction. Its height will accommodate any number of spouts from different points, without moving machine. They have a capacity from 700 to 1,500 bushels per hour. We also control exclusively the manufacture of the celebrated Dickey Giant, End and Side Shake, Warehouse Mills, that have attained such a world-wide reputation. Sent on approval to any reliable party. For full particulars address,

A. P. DICKEY MANUFACTURING CO. Successors to Dickey & Pease, **RACINE, WIS.**

EUROPEAN ECHOES.

THE quotations from Paris, according to Beerbohm, shall in future be per 100 kilos, equal to 220½ pounds of wheat, and for 159 kilos, equivalent to 350½ pounds of flour.

DURING the first 13 weeks of this crop year Russia exported 26,500,000 bushels of wheat, against 35,500,000 in 1888 and 32,410,000 in 1887. During the first 43 weeks of 1889 the Russian wheat exports footed 82,584,000 bushels, against 94,488,000 in 1888 and 54,138,000 in 1887.

EUROPEAN imports of Indian wheat from January 1 to November 30, 1889, footed 23,480,000 bushels, against 30,840,000 in 1888. From April 1 to November 30, 1889, Europe imported 18,200,000 bushels of Indian wheat, against 27,780,000 bushels in the same period in 1888.

THE exports of grain from Odessa in 1888 were headed chiefly to the following countries: To the United Kingdom 3,816,000 quarters; Holland 1,440,000 quarters; France 828,000 quarters; Belgium 792,000 quarters; Italy 520,000 quarters; Germany 396,000 quarters; and to all other countries only 720,000 quarters, a total of 8,532,000 quarters.

THE well-known English crop writer, H. Kains-Jackson, writes: Coming weather, rather than existing supplies, should regulate future prices for the next three months. Any ordinary winter blockade of Russian ports would give America a unique opportunity of selling its surplus wheat, as there really would be no competitive seller. There may be several prospective wheat sellers for spring, but, if Russia be disabled by frost, America would have the field to itself, remembering that there are some 800,000 quarters less of white wheat on passage than were afloat a year ago to fill up mid-winter requirements. However, American strength would have within itself an element of weakness in the power of American millers, who have been replenishing their stores this autumn with cheap and rather inferior wheat, who might consign flour to the United Kingdom and reduce the power of the wheat market.

POINTS IN MILLING.

THE question of cool grinding, like many other important questions connected with flour-making, is probably being overworked. I find that a great many millers do not believe in grinding too cool. During the past season I have put the question, "Should grinding be done at the lowest possible temperature?" to over 100 practical flour-makers. Summing up their answers from my note-book, I find that 75 per cent. are in favor of warm grinding, always with the proviso, of course, that the heat shall not be allowed to pass a certain point. Of the remainder, some believe in cool grinding, but none were willing to advocate "the coldest grinding possible." Several among those questioned had no ideas at all on the subject. All who had thought on the matter agreed that some heat in grinding is absolutely unavoidable, and they agreed that that heat should be kept down to a certain point.

THAT point was not, and is not, easy to determine. It would require a series of experiments, carefully made, to enable a miller to state the thermometrical degree of heat that is proper and allowable in flour-making. Who will undertake the experiments? Every miller knows the mechanical means of keeping down heat in grinding, but how many of them know how far down it is best to keep it? Here is a field for some of the ingenious scientific investigating millers. Give the flour-makers the Fahrenheit degrees to go by, and the hot-and-cold question will be settled.

A COTEMPORARY, the St. Louis, Mo., "Contractor and Builder" says; "THE MILLING WORLD makes the following rather remarkable statement: 'Slate is not a safe material for mill roofs. Not long ago I saw a slate-roofed mill fired by heat from an adjoining burning building. The heat cracked the slates and they ran off the roof in a shower,

leaving dry wood exposed to the flames. Another building covered with shingles was equally exposed, and singularly enough the roof of the slate-covered mill took fire before the roof of the shingle-covered building.' That wood is less impervious to fire than slate is a suggestion that certainly contradicts all past experience. In fire-proof edifices the builder invariably prefers slate to wood, though in case a structure adjoins another in flames, the less combustible shingling might crack and become useless."

LET our critic try a simple experiment for his own instruction and satisfaction. Let him take an ordinary roofing-slate and an ordinary shingle and expose both to flames, keeping both sprinkled during exposure, so that the conditions shall closely resemble the conditions of the slate and shingle roofs mentioned in the mill fire. Let him watch and carefully record what takes place as the exposure is severe enough to cause the wetted shingle to burn. The condition of the slate when the shingle takes fire will probably open his eyes to some new points in the behavior of wood fiber and silicon under similar conditions.

"FIRE-PROOF edifices"? What are they? Where are they? Such fires as those in Boston and Chicago demonstrate that the really "fire-proof" edifice is yet to be built. "Slow-burning" would be a better term than "fire-proof."

"CERTAINLY contradicts all past experience"? Does it? London experts declare that wood will stand in fire more than iron or any sort of stone. "Past experience" has of late years been undergoing a great deal of very successful contradiction, as all millers will promptly admit. It is becoming generally and justly believed that "fire-proof edifices," depending upon metal and stone for their immunity from conflagration, are a costly and dangerous sham. The metal melts and warps. The stone calcines and crumbles. The result is ruin, complete as the ruin of the average wooden structure.

MOST of the inventions of the present time relating to the grain and flour lines appear to be weighing machines. Every day a new weighing machine is announced, capable of managing its own affairs so successfully that the miller shall have nothing but to set it in operation. Weighing machines are all very good in their way, but their invention is overdone, to put it mildly. The reserve stores, the visible supply and the crop prospects of weighing machines weigh heavily upon the miller of this day. Let the inventors take up some less overworked field of machinery for millers.

WHAT becomes of all the milling-machines invented and patented nowadays? During 1889 I was continually hearing of new machines in this line. Nearly every miller met had invented or was about to invent, had patented or was about to patent, a sieve, a smutter, a roller-mill, a middlings-purifier, a packer, a buhr dress, a stone-picker, or some other valuable thing to millers. Many of them had thought out new processes that promised to make milling practically a new business. Yet here we are, at the end of 1889, without any material change noticeable in either machines or processes employed in flour-making. What has become of the new wrinkles, the great machines and the remarkable processes evolved by millers during the year?

PROBABLY when the inventors tried to reduce the theories to practice and to put their machines in operation, they ran against snags that did not appear in the dreams and visions that begot the theories and the machines. A word to the miller who has made a startling discovery: Before publishing your discovery, apply practical tests to it. Learn whether it will accomplish what it seems to promise. If it promise too much, mistrust it. If it fails to do what it promises, be sure to know the failure before you proclaim to the world that you have surpassed all recorded achievements in a given line.

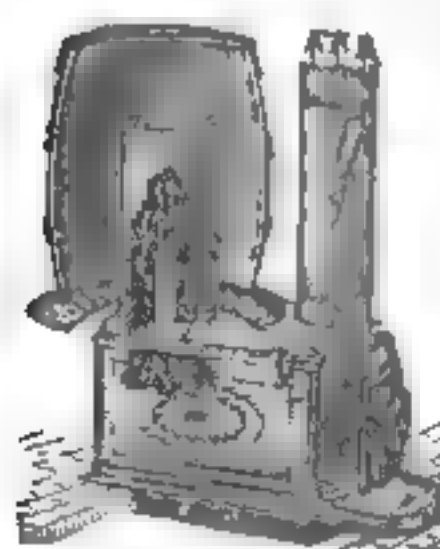
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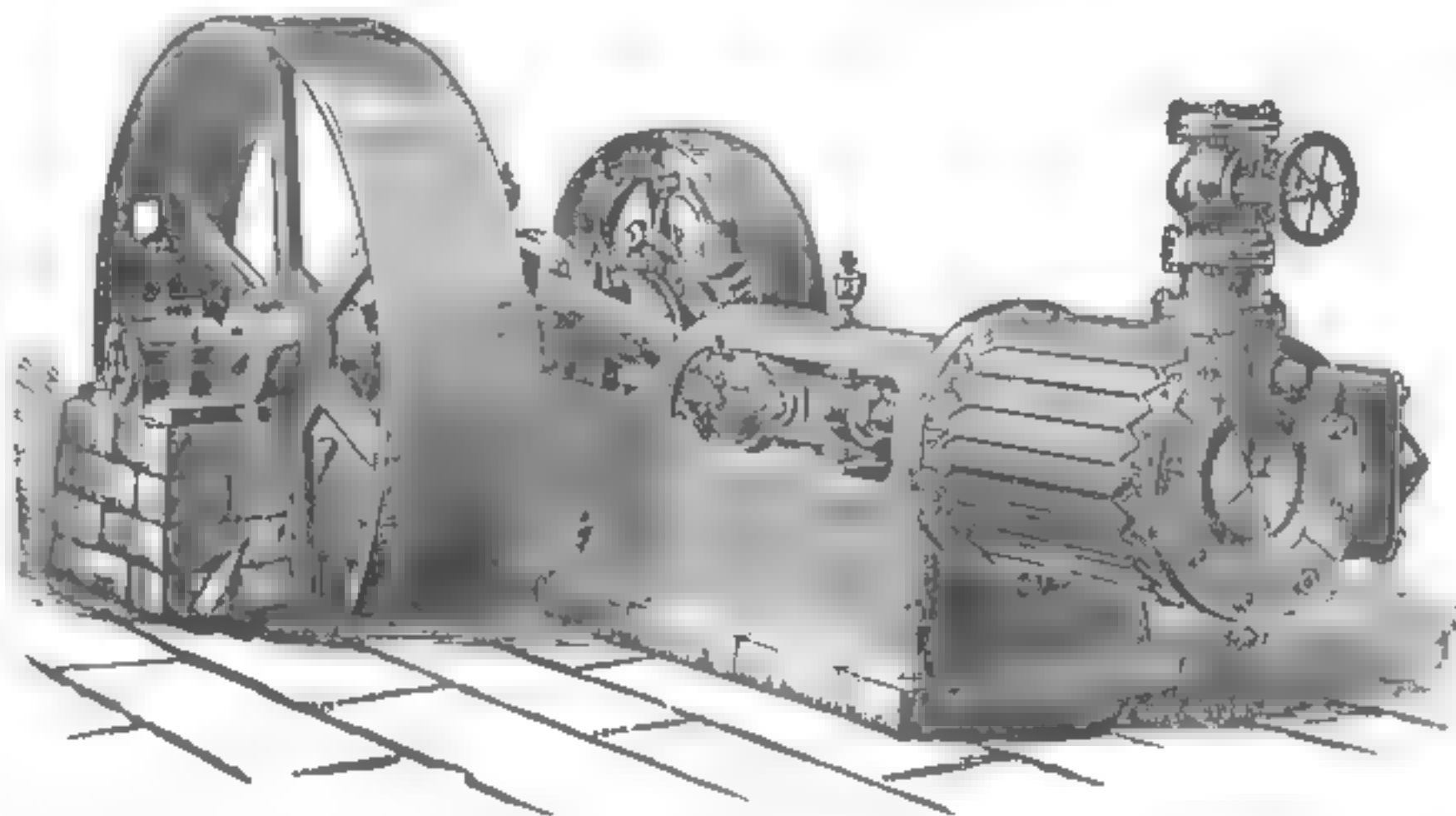
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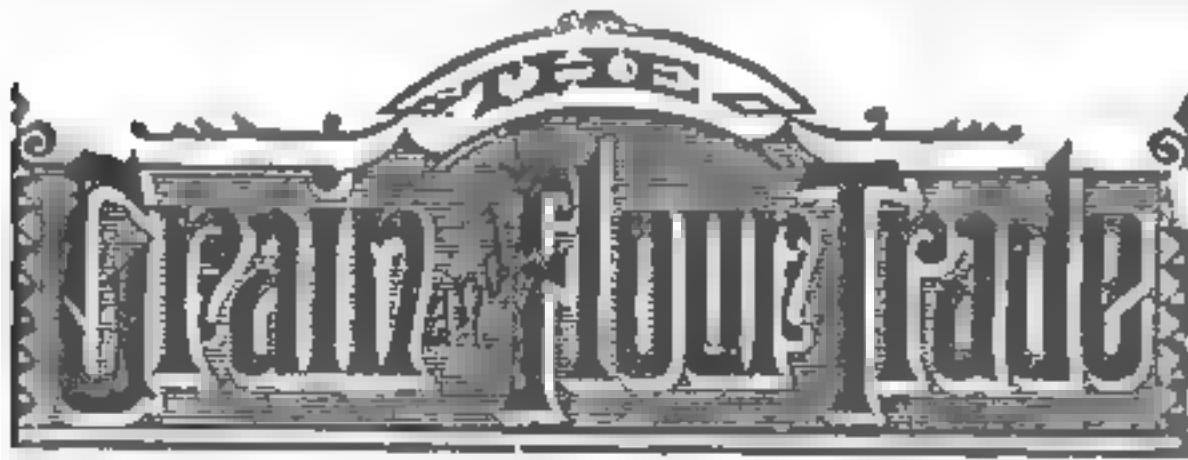
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OFFICE OF THE MILLING WORLD,
BUFFALO, N. Y., Dec. 21, 1889.

Friday of last week brought generally dull, weak and lower markets on lack of demand and on long realizing in New York. December wheat closed at 84½c., with Atlantic port receipts 36,281, exports 80,347, and options 1,850,000 bushels. December corn closed at 42½c., with receipts 235,610, exports 209,595, and options 700,000 bushels. December oats closed at 28½c., with receipts 139,285, exports 126,264, and options 300,000 bushels. Wheat flour was flat, with buyers and sellers 10@15c. apart on spring patents, which cost \$5@5.10 to lay down the best grades in New York, while buyers will offer only \$4.90@5.00. Receipts 11,435 sacks and 27,879 barrels, and exports 28,295 sacks and 35,510 barrels. The minor lines were featureless.

Saturday brought moderate offerings and somewhat improved buying, resulting in steady, though dull markets. December wheat closed at 84½c., with receipts 106,768, exports 87,190, and options 672,000 bushels. December corn closed at 42½c., with receipts 202,553, exports 106,527, and options 1,200,000 bushels. December oats closed at 28½c., with receipts 80,062, exports 7,084, and options 60,000 bushels. Wheat flour ruled slack and generally unchanged, with trade small. Receipts included 18,580 sacks and 49,232 barrels, and exports 980 sacks and 26,632 barrels. The other lines were quiet.

Monday brought no significant changes in the market, excepting a weakness in corn, on large northwestern receipts. December wheat closed at 84½c., with receipts 150,214, exports 133,298, and options 1,600,000 bushels. December corn closed at 42½c., with receipts 232,348, exports 92,642, and options 500,000 bushels. December oats closed at 28½c., with receipts 143,878, exports 4,831, and options 115,000 bushels. Wheat flour was dull and unchanged, with receipts 17,060 sacks and 54,961 barrels, and exports 31,617 sacks and 2,720 barrels. The minor lines were featureless. The visible supply in the United States and Canada was:

	1889. Dec. 14.	1888. Dec. 15.	1887. Dec. 17.
Wheat.....	33,944,742	37,213,583	43,231,009
Corn.....	5,369,283	6,327,430	5,380,409
Oats.....	4,827,857	8,010,025	6,091,274
Rye.....	1,212,326	1,613,621	279,679
Barley.....	2,583,794	2,424,498	3,600,806

Tuesday brought dull, irregular and generally weak markets, on free offerings, absence of demand and lack of speculative operations. December wheat closed at 84½c., with receipts 47,333, exports 100,270, and options 872,000 bushels. There was a diversity of opinion regarding the English wheat crop estimate, some claiming it was more and others that it was less than previous estimates. The confusion arises from the first estimate being 80,000,000, followed by a later one of 69,000,000, while the one on Tuesday was 73,000,000, showing 4,000,000 more than the last previous estimate, and hence it was a bear influence. December corn closed at 42½c., with receipts 246,207, exports 290,691, and options 1,200,000 bushels. December oats closed at 28½c., with receipts 102,764, exports 109,922, and options 100,000 bushels. Wheat flour was dull except for winter straights. The receipts included 14,077 sacks and 28,231 barrels, and the exports 49,983 sacks and 17,550 barrels. The minor lines were featureless.

The following shows the amount of wheat and flour, together with the amount of corn on passage to United Kingdom, for ports of call or direct ports for the weeks mentioned:

	1889. Dec. 17.	1888. Dec. 18.
Wheat and flour, qrs....	2,039,000	2,456,000
Corn, qrs.....	400,000	244,000

The following shows the amount of wheat and corn on passage to the Continent for the past week and for the same week last year:

	1889. Dec. 17.	1888. Dec. 18.
Wheat, qrs.....	366,000	579,000
Corn, qrs.....	205,000	70,000
Shipments India wheat to U. K.....	67,500	
do do Continent..	37,500	

The imports into the United Kingdom for the past week and for the same weeks in previous years were as follows:

	1889. Dec. 17.	1888. Dec. 18.	1887. Dec. 20.
Wheat, qrs.....	184,000	340,000	238,000
Corn, qrs.....	107,000	101,000	118,000
Flour, bbls.....	192,000	110,000	234,000

Wednesday brought dull but higher markets generally on shorts covering and on smaller offerings. December wheat closed at 84½c., with receipts 90,296, exports 123,429 and options 1,000,000 bushels. December corn closed at 42½c., with receipts 277,714, exports 96,336, and options 560,000 bushels. December oats closed at 29c., with receipts 128,912, exports 38,348, and options 350,000 bushels. Buckwheat grain was nominally 45c. for choice. Rye grain was dull and nominally quoted as follows: Jersey and Pennsylvania, on track, ungraded, 55@56c; state do 58@60c; No. 1 state delivered, full loads, 62@62½; Canada 61@62c and No. 2 Western 60c. Barley was wholly nominal in absence of demand, but steadily held at old prices. Quoted: Two-rowed 53c; six-rowed 56@58c; No. 2 Canada 58c; extra No. 2 do 60c. Malt was dull and unchanged at old prices asked. Sales 1 car new Western at 62½c. Quoted: Country-made, old, at 70@85c; new do 80@85c; two-rowed state, old, 67½@72½; new do 70@75c; six-rowed old 67½@75; new do 75@80c; Western old 45@72½c; new do 55@80c. Mill feed was dull and unchanged, with no pressure reported to sell and little inquiry, as the trade was well supplied. Quoted: 62½c for 40 and 60 lbs and 50@82½c for 100 lbs; 80 lbs same as 40, and rye 70@75c nominally.

Wheat flour was dull and depressed on spot on all trade brands, both spring and winters, as free arrivals were not all sold and the railroads were enforcing removals on ten days' notice, which in the present state of the market, with buyers and sellers 10c. apart, put the latter at the mercy of the former, and hence 5@10c. concessions were accepted to move stuff off the dock, but not on stuff to arrive nor on shipping grades, which were not plenty and steady, with a moderate demand. The receipts included 15,910 sacks and 37,314 barrels, and the exports 6,725 sacks and 3,411 barrels. The quotations were as follows:

SPRING FLOUR.		
	Sacks.	Barrels.
No grade.....	\$1.50@1.60	\$....@....
Fine.....	1.80@2.05	1.95@2.20
Superfine.....	2.05@2.30	2.30@2.65
Extra No. 2.....	2.30@2.60	2.55@2.85
Extra No. 1.....	3.00@3.20	3.25@3.75
Clear.....	3.05@3.35	3.40@3.50
Straight.....	3.80@4.20	4.15@4.70
Patent.....	4.60@4.80	4.80@5.20

WINTER FLOUR.		
	Sacks.	Barrels.
No grade.....	\$1.45@1.70	\$....@....
Fine.....	1.90@2.20	2.00@2.30
Superfine.....	2.25@2.45	2.25@2.50
Extra No. 2.....	2.40@2.70	2.50@2.80
Extra No. 1.....	2.70@3.70	2.85@3.60
Clear.....	3.25@3.60	3.55@3.85
Straight.....	3.85@3.90	3.95@4.30
Patent.....	4.10@4.30	4.35@4.80

CITY MILLS.		
W. I. grades.....	4.25@4.35	
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Patents.....	4.90@5.50	

Rye flour was dull and unchanged, at \$3.25 @3.40 for good to choice brands. Buckwheat flour was dull, on the mild weather, at \$1.60@1.70. Corn products were quiet on barrel and

active on bag stock. Quotations: 82@83c. for coarse and 95@96c. for yellow and white meal, \$2.65 for Brandywine, and \$2.50@2.60 for Southern and Western.

On Thursday the markets were unchanged. December wheat closed at 85½c., with receipts at 12,650, exports 21,502, spot sales 116,000, and options 1,872,000 bushels. December corn closed at 42½c., with receipts 39,600, exports 22,400, short sales 154,000, and options 1,224,000 bushels. December oats closed at 29½c., with receipts 114,000, spot sales 131,000, and options 205,000 bushels. Wheat flour was moderately active, with receipts 21,331 packages, and sales 22,700 barrels. All the minor lines were unchanged.

BUFFALO MARKETS.

WHEAT—The market is a little firmer to-day, No. 1 hard selling at 96½c, No. 1 Northern at 87½c, No. 2 Northern at 84c, and extra No. 2 84½c. Not a great deal was done in spring wheat. No. 2 red winter is still held at 85c, No. 2 white at 78½@79c, and no sales of moment are reported. CORN—The market is quiet at 38c for No. 2 mixed in store and No. 2 yellow in store is held at 40c. Some No. 2 new whive was sold to-day at 36½c. No. 2 mixed in store is held at 38@39c. OATS—No. 2 white oats remain firm at 28½c. and No. 2 mixed are held at 26½c. The market is steady at these prices. No. 2 white sold at 28½c, and No. 1 do is held at 30½c. RYE—Some offers were made to-day at 53c, but there is not much demand. BARLEY—The market is almost entirely nominal. The range is 52@66c for Canada. State is nominal at 40@55c. OATMEAL—Akron, \$6.00; Western, \$5.75 per bbl.; rolled oats, in cases, 72 lbs., \$3.25. CORNMEAL—Coarse, 80@85c.; fine, 85@90c; granulated, \$1.50 per cwt. MILLFEED—City-ground coarse winter, \$11.00 @11.50 per ton; fine do, \$11.00@11.50; finished winter middlings, \$13.00@14.50; coarse spring do, \$11.50@12.00.

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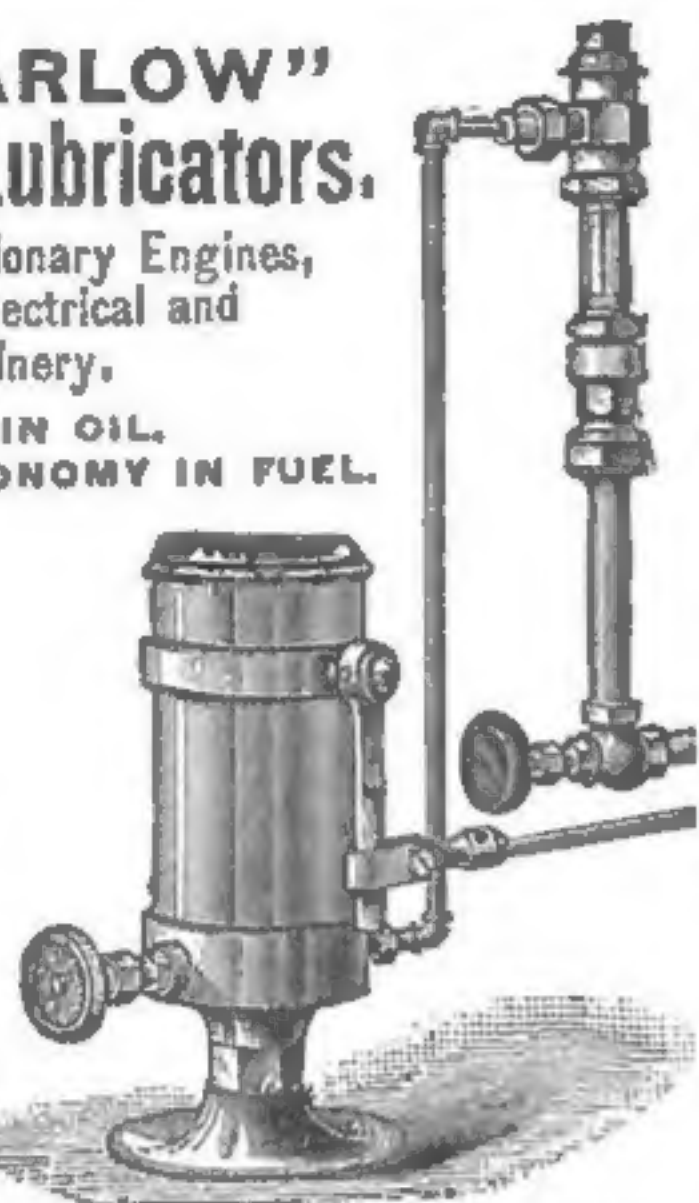
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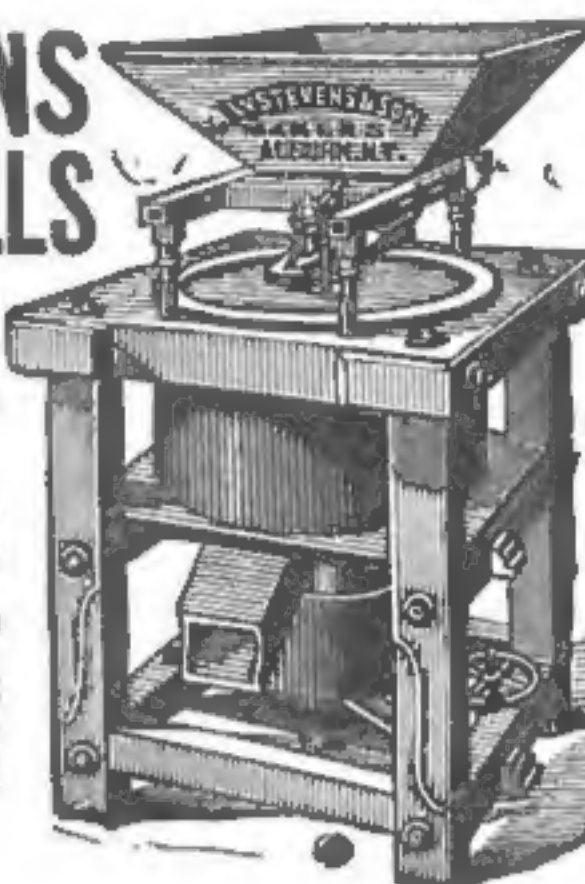
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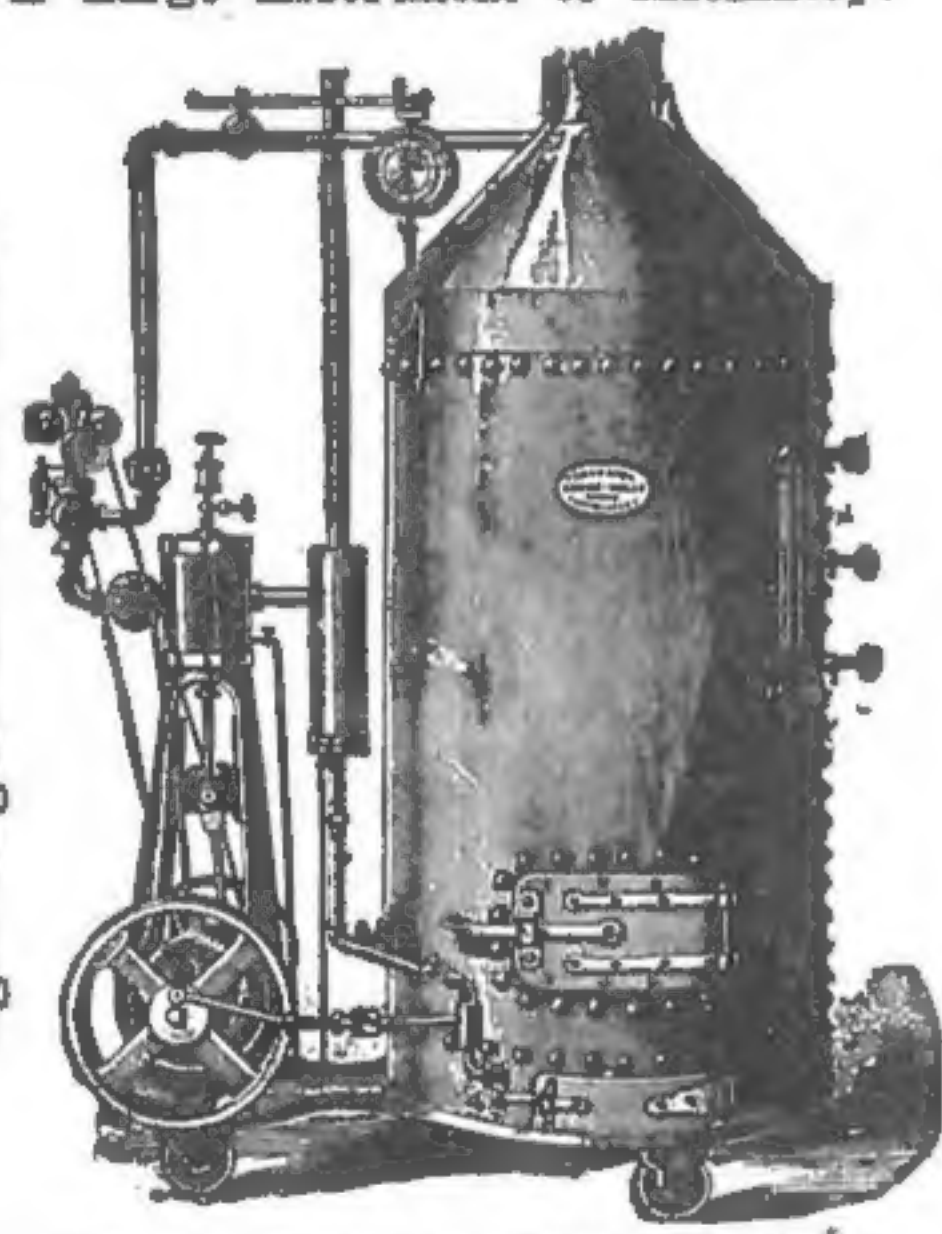
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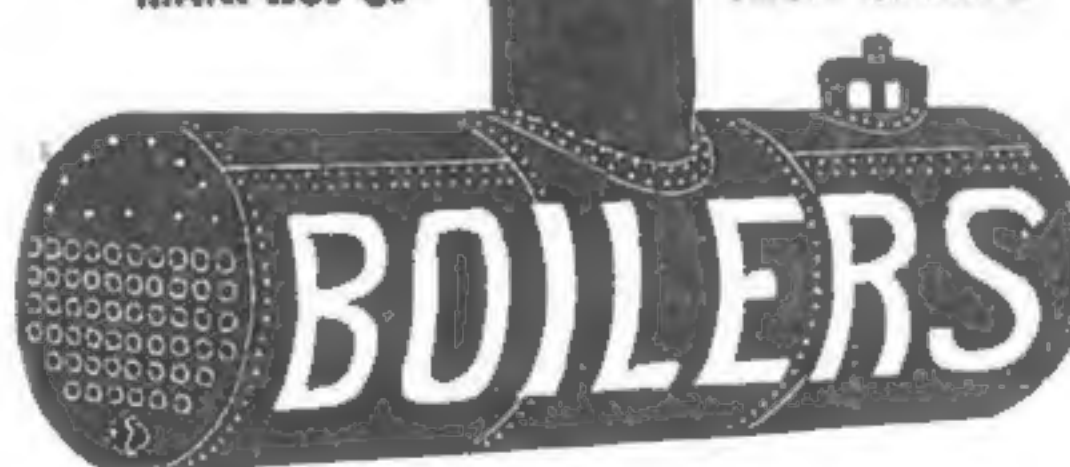


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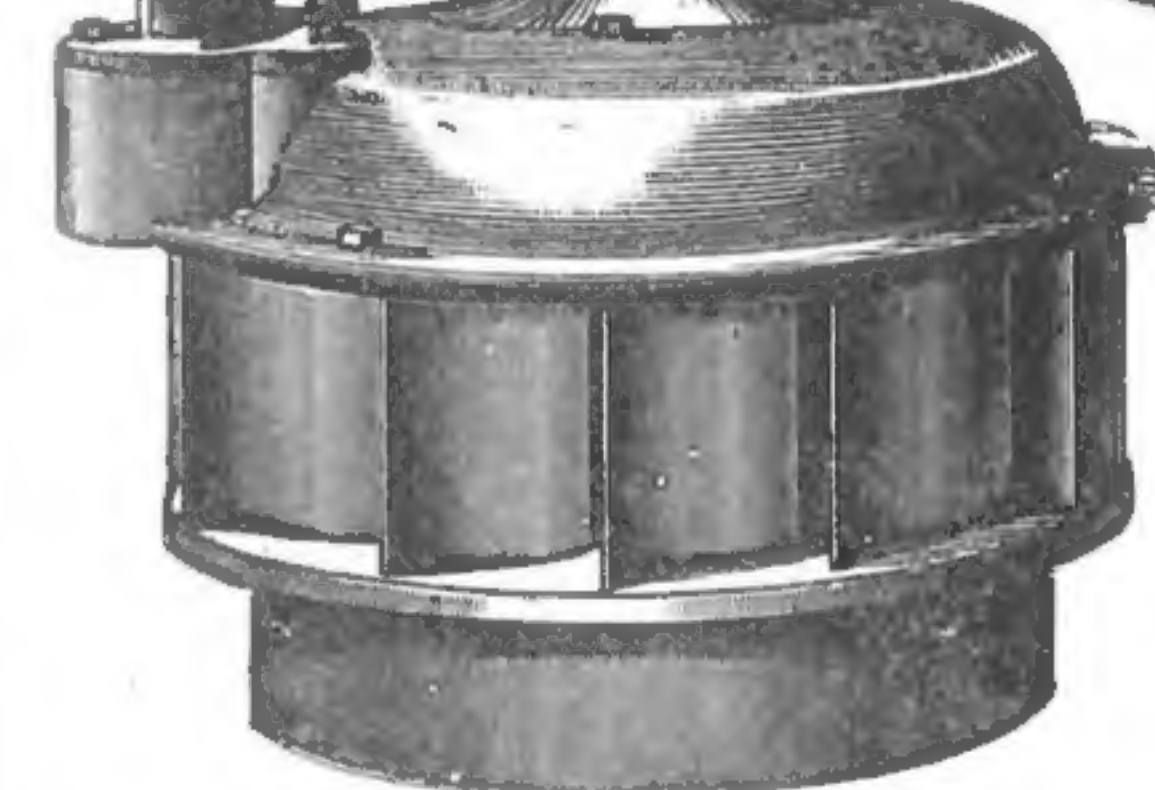
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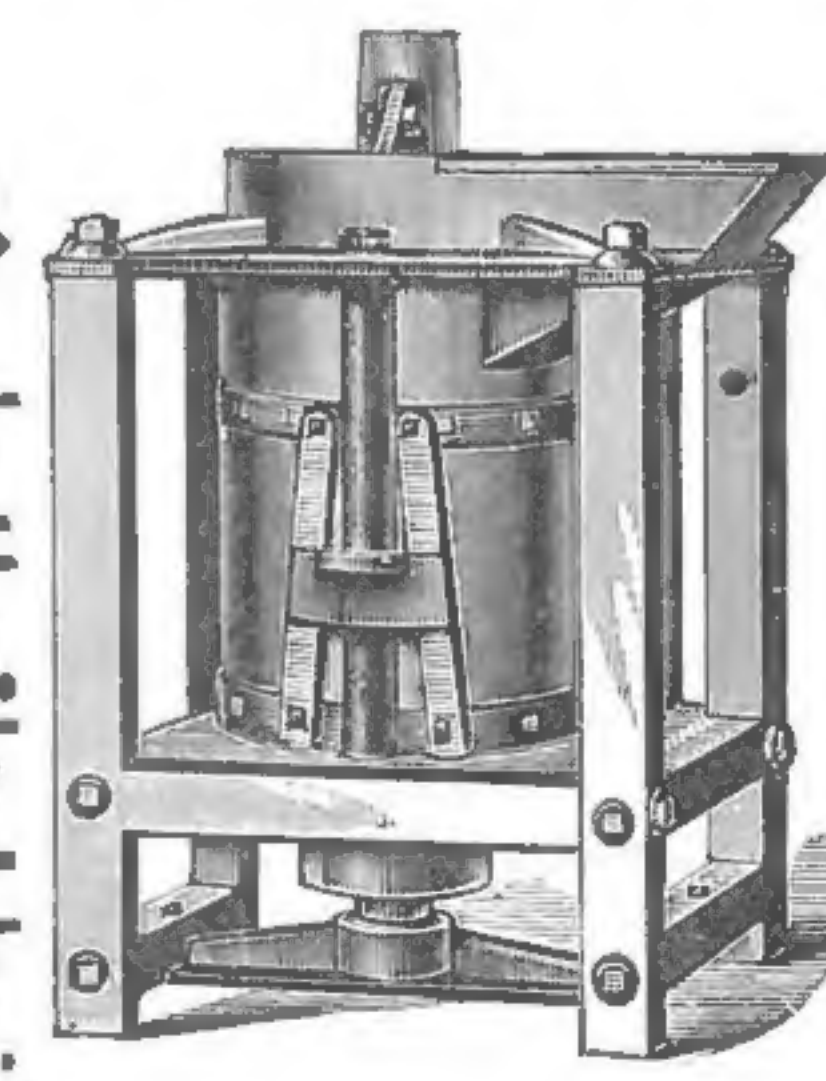
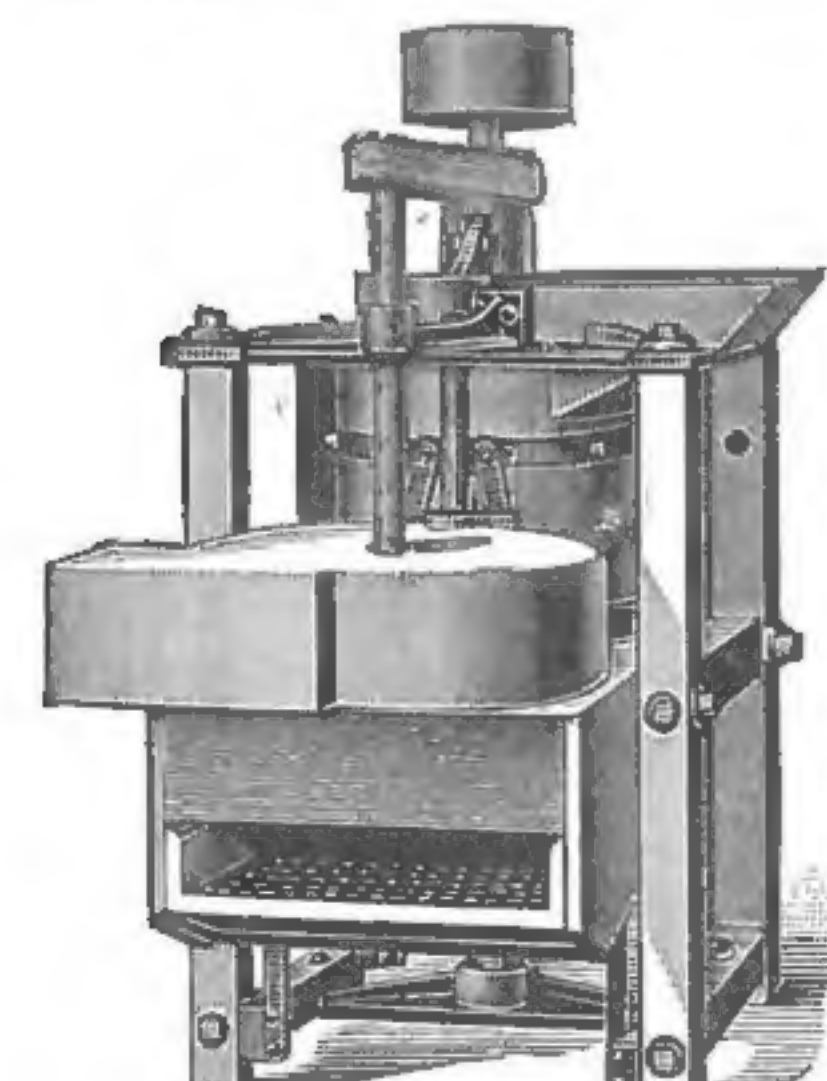
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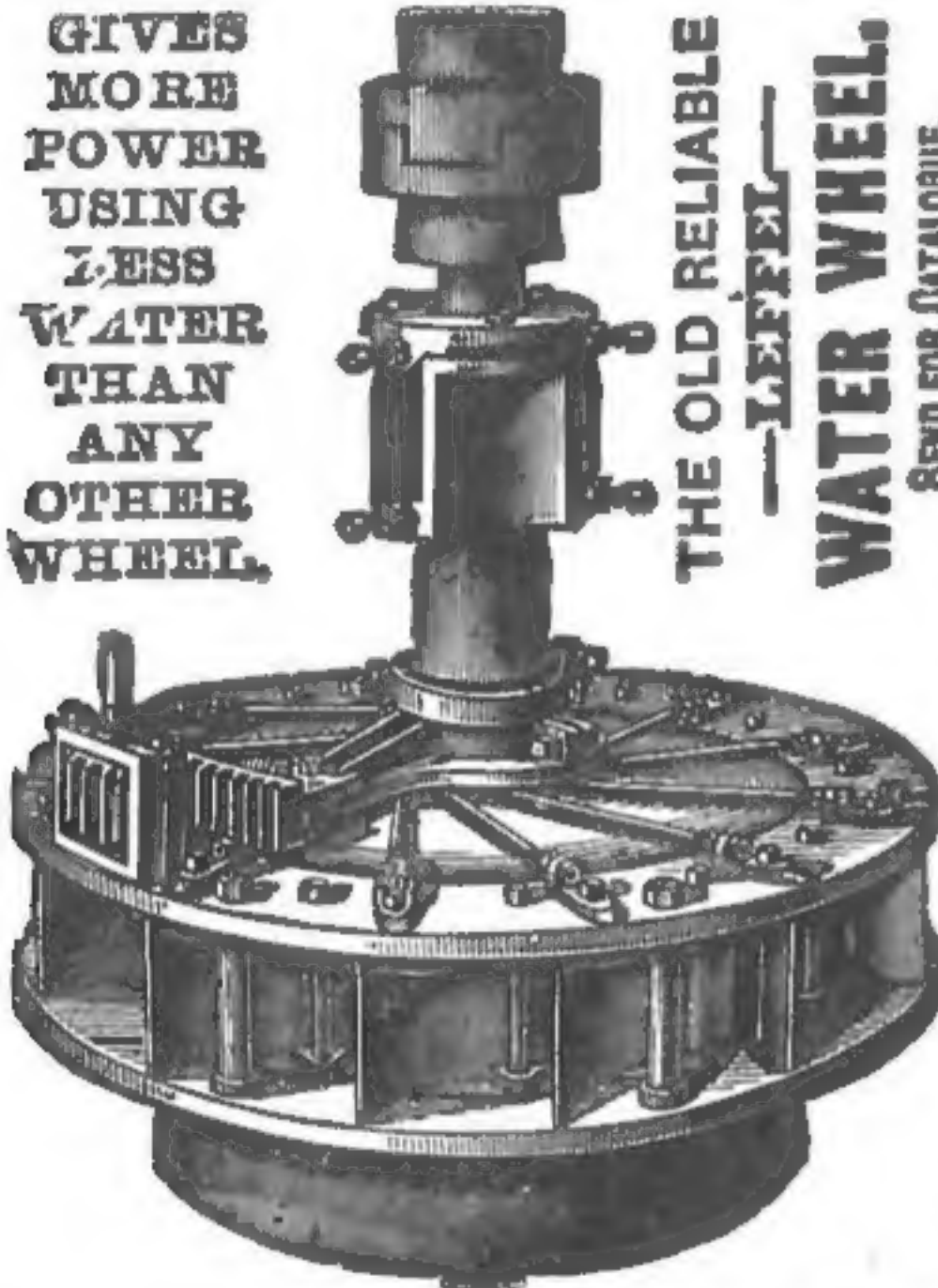
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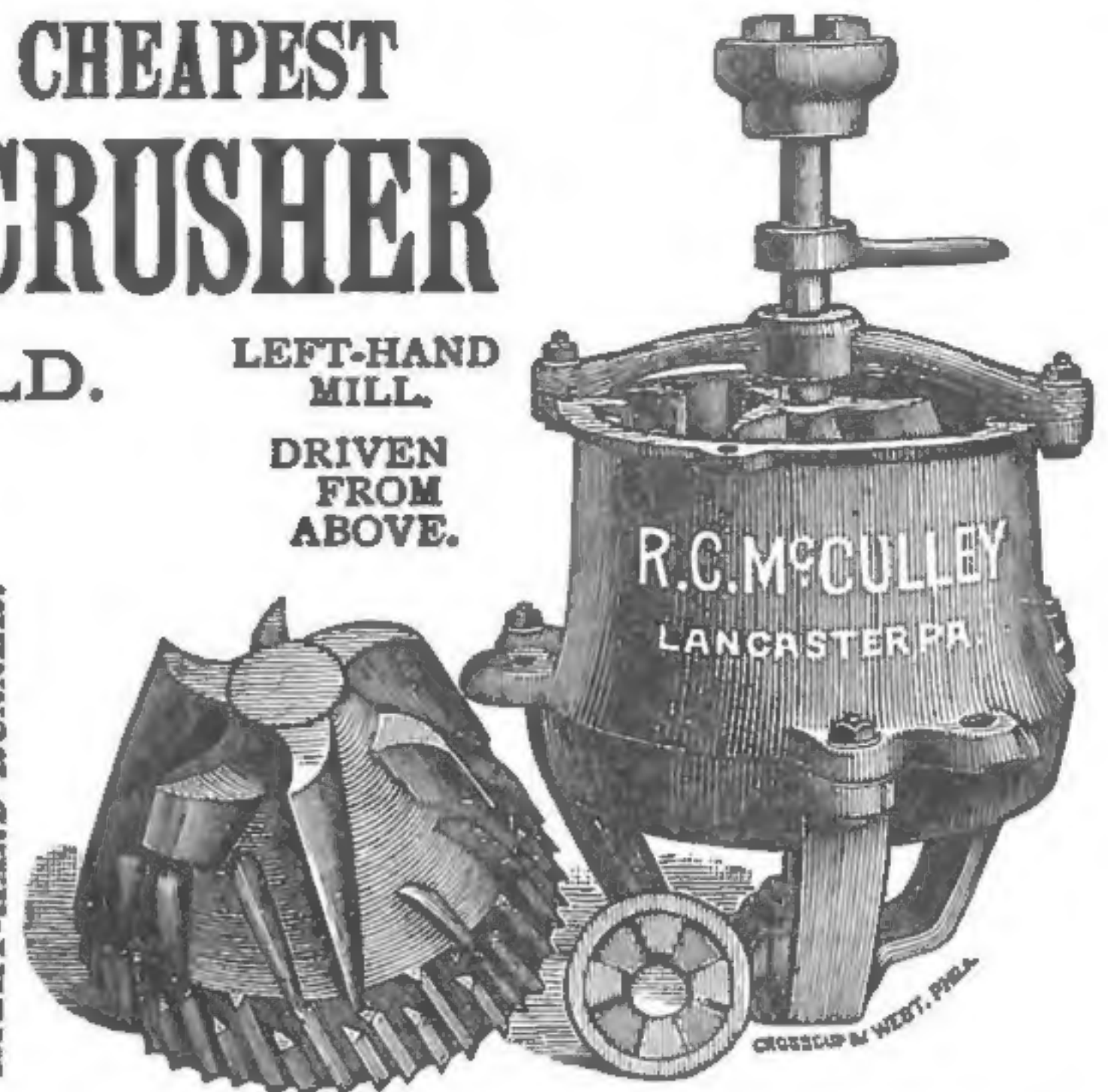
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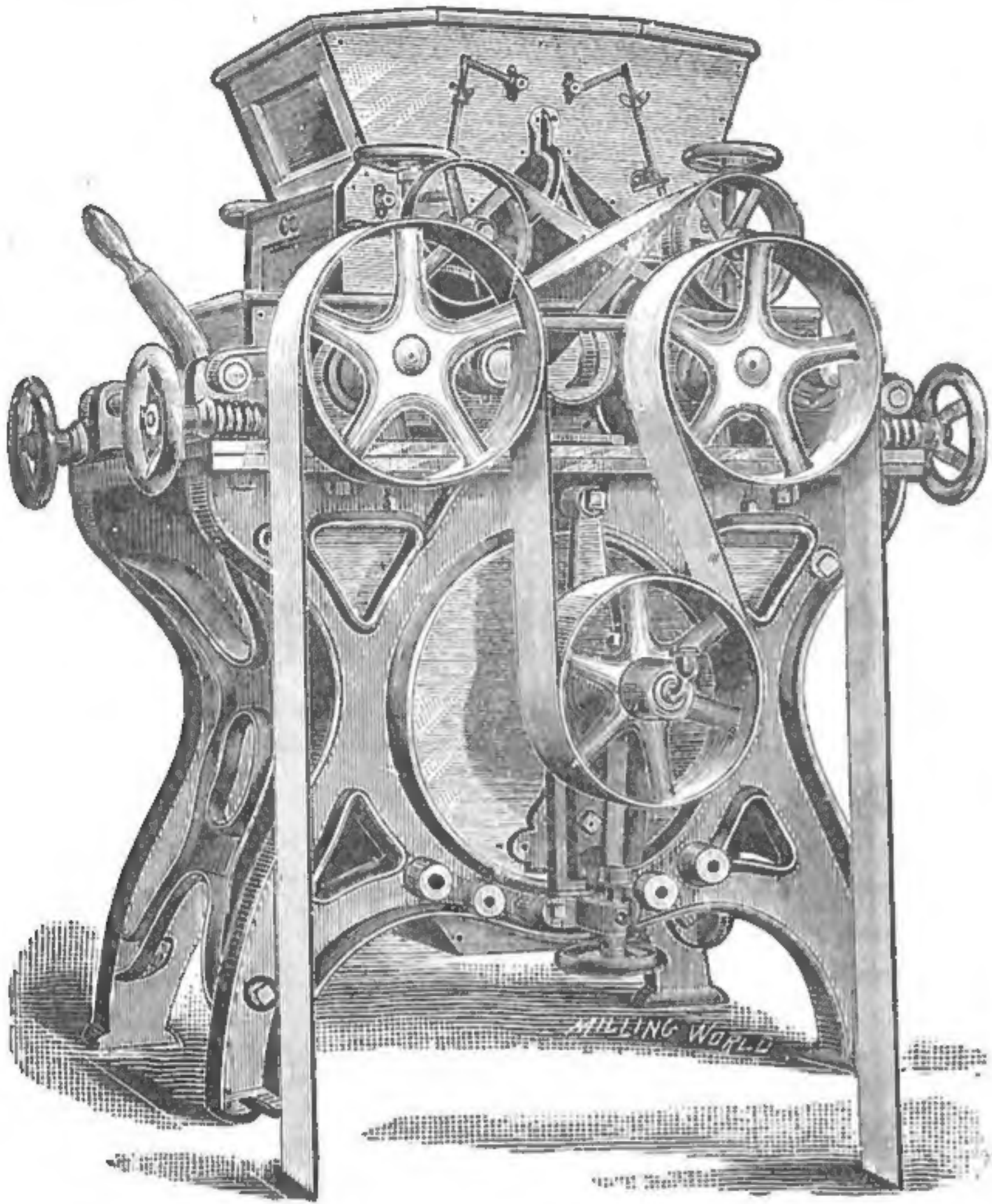
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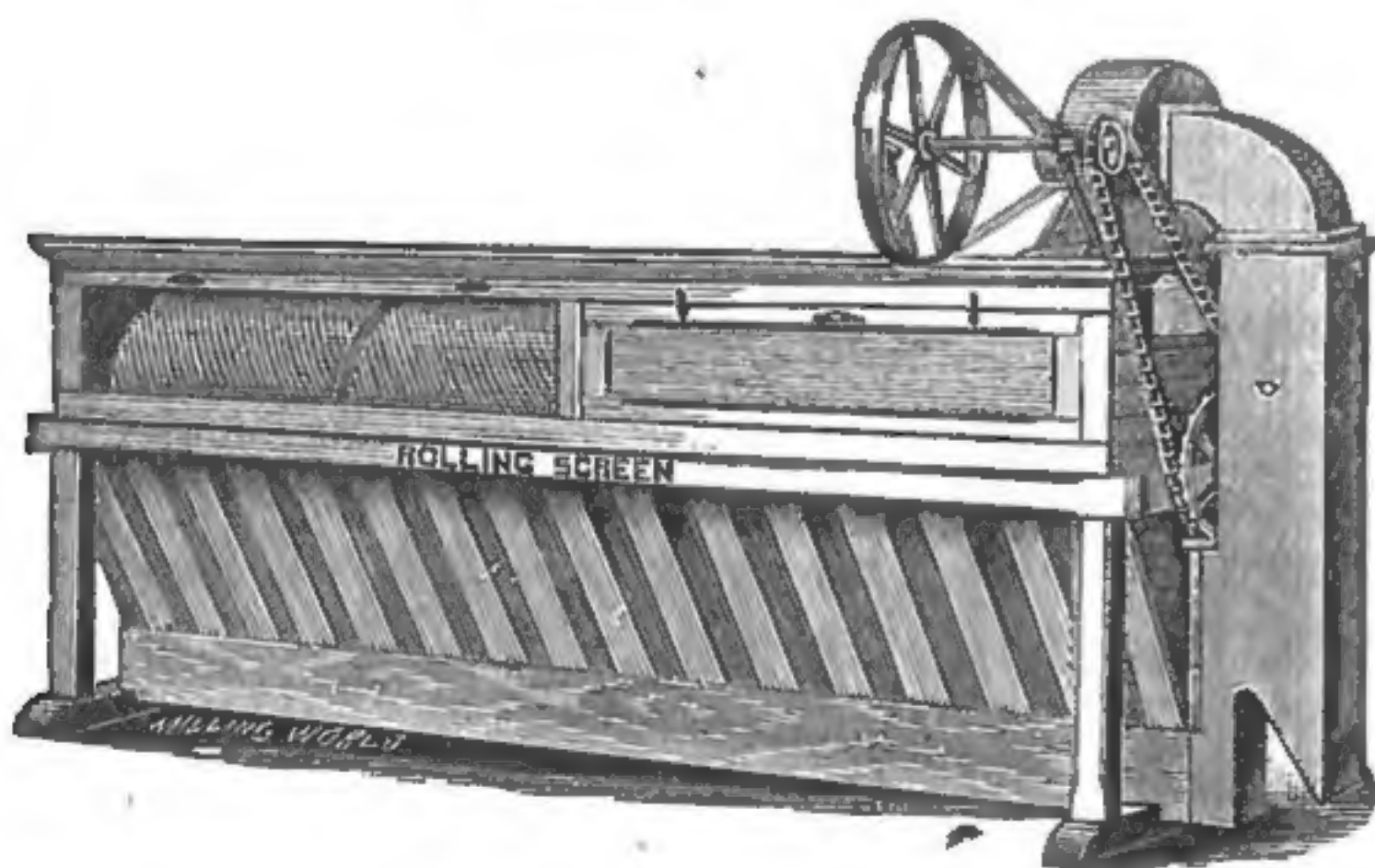
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6x12 inch.

6x18 inch.

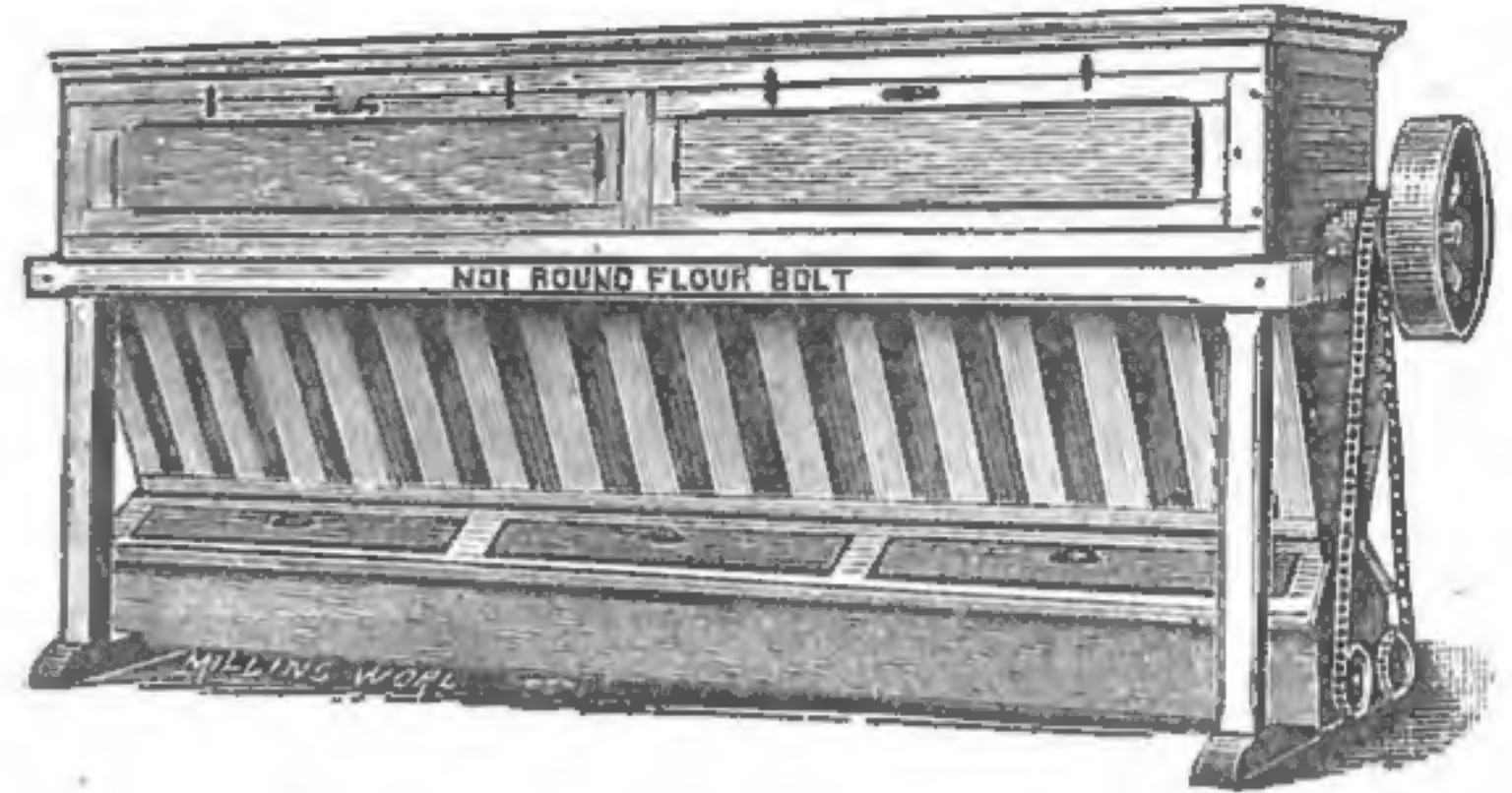
6x15 "

6x20 "

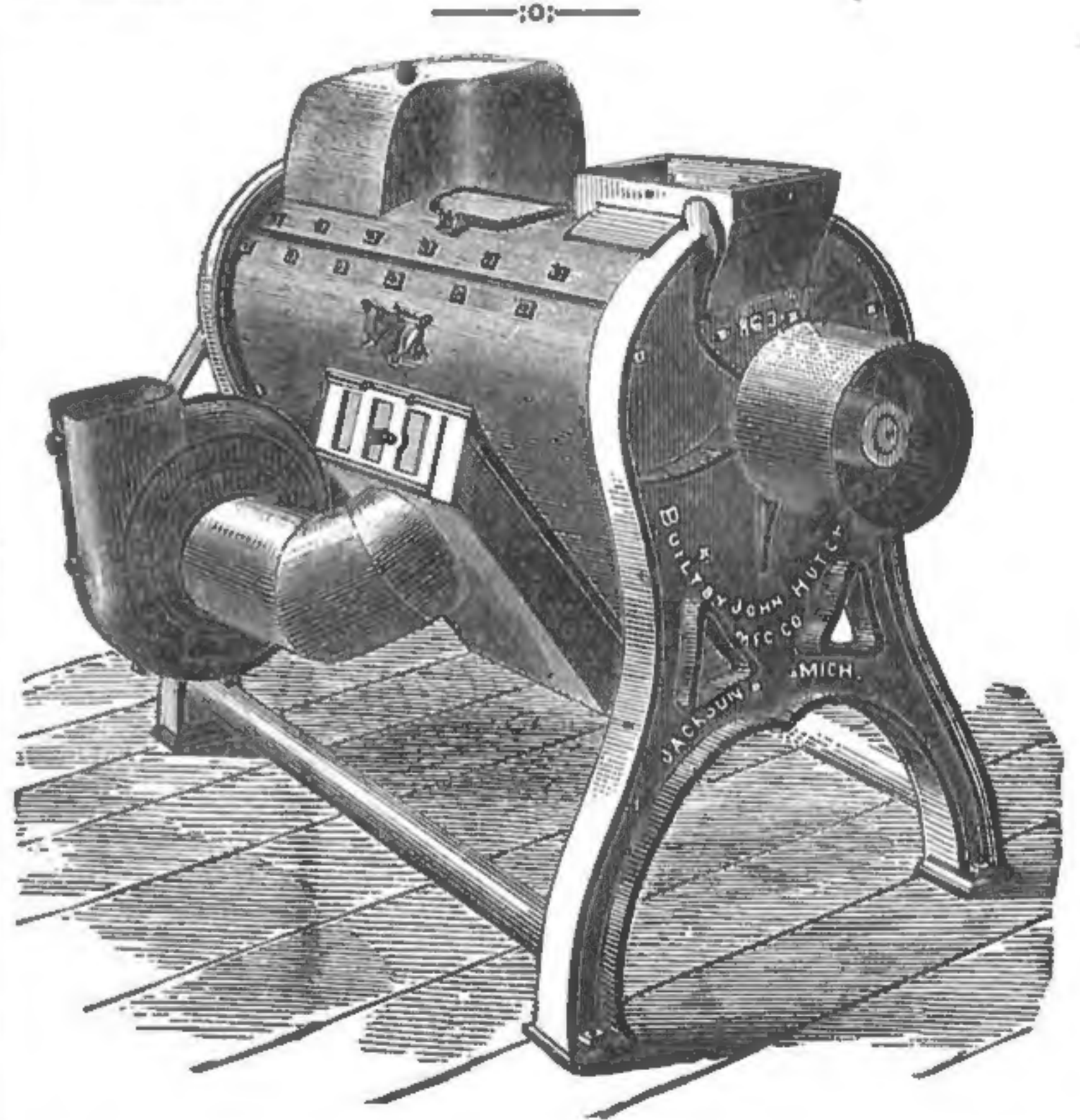


The above cut represents our New Rolling Screen, which is absolutely dustless and has as much scouring qualities as any two scouring machines now being made.

Send for Estimates for Our Full Roller Mills of any Capacity.



The above cut shows our New Round Slow Running Flour Bolt. We also build a Cylinder or Round Scalping Reel and we have lately built a number of new mills of medium capacity, using our Roller Mills, our Round Flour Bolts and Scalping Reels, getting better results than is usually obtained.



Hutchison's New Dustless Iron Corn Sheller, especially adapted for Mill and Elevator use.

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SELF-TRAMMING

PORTABLE MILL

BEST GRINDING MILL MADE.

BOLTING CLOTH

AND

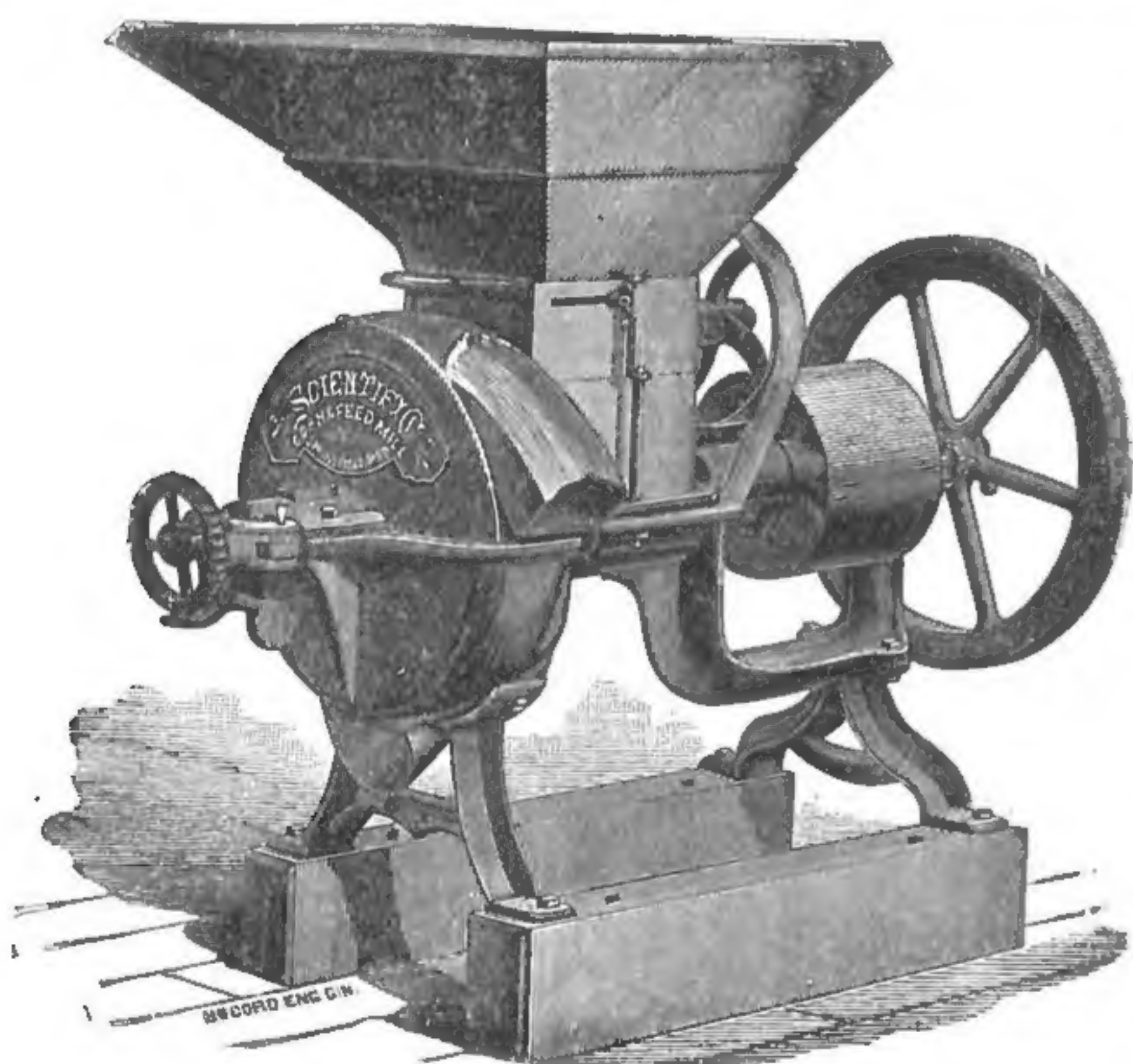
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SPRINGFIELD OHIO.

STILL ON TOP.

Perhaps the HIGHEST COMPLIMENT that could be paid the "Salem" bucket is the fact that during the past few years ITS SHAPE HAS BEEN SO CLOSELY IMITATED by other manufacturers as to infringe our patented rights, but experience reveals the IMPERFECTIONS OF IMITATIONS, and we therefore take it as a FURTHER COMPLIMENT to the "SALEM" bucket that some of its old patrons who were Induced to Try the Imitations have now Returned to the Salem Bucket, thereby Acknowledging it to be the Most Satisfactory. Don't be deceived by other makes of buckets that are claimed to be "Just as Good." Insist upon having the ORIGINAL AND RELIABLE SALEM BUCKET. All legitimate Salem buckets are plainly marked with the word

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